HELSINKI SCHOOL OF ECONOMICS (HSE)
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THE MORE THE MERRIER?

A quantitative analysis on venture capital syndication motives

Finance
Master's thesis
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Abstract
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Research problem and motivation

This paper examines the question of what drives venture capital syndication. In a sense the syndication of venture capital deals is a strange phenomenon: By sharing investment opportunities, the original investor gives up a part of its potential return to rival venture capital companies. One natural explanation to syndicating is the venture capitalist's desire to avoid risk. But what are the other incentives? The purpose of this paper is to study different motives for venture capital syndication and try to explain why VC firms give up potential return by not investing the whole amount needed by the portfolio company, i.e. to answer the question "Why do venture capital companies decide to syndicate their investments?" Previous research has mainly approached the issue by using questionnaire-based data. Apart from Hopp and Rieder (2006) this is the first study of its kind to use actual deal specific outcome data. This enables me to draw new conclusions and study the subject from a fresh angle.

Data

The sample used in this paper consists of 1232 venture capital transactions in Finland between 1.1.1996-31.3.2006 involving 664 target companies and 119 venture capital investors. The transactions have been identified and compiled by using Thomson Venture Economics (TVE) VentureXpert database and complemented using public sources, including the Finnish Venture Capital Association, public disclosures and corporate web sites. Company specific data has been extracted from the Voitto+ database and public sources.

Results

I identify several key drivers of venture capital syndication decision: Deal size, risk related to the field of industry the target company operates in, investor experience and expertise, geographic location of the investor and the investment round number. Larger and riskier deals are more likely to be syndicated. Investors that are inexperienced in terms of the number of deals done previously are more likely to co-invest. Foreign investors prefer to invest together with local venture capitalists. First-round deals are more likely to be syndicated because the incentives are highest at that time.

Keywords: Venture capital, syndication, venture capital syndication motives

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Tiivistelmä
Kevät 2007

Tutkimusongelma ja motivointi

Pääomasijoitusten syndikointi on tavallaan aika kummallinen ilmiö: jakaessaan sijoitusmahdollisuuksia muiden sijoittajien kanssa, alkuperäinen sijoittaja luovuttaa osan projektin mahdollisesta tuotosta kilpailijoilleen. Osittain päätös selitettävissä sijoittajan halulla karttaa riskiä. Mutta mitkä ovat muut tekijät saavat sijoittajan toimimaan näin?. Tämän paperin tarkoitus on tutkia syndikoinnin eri motiiveja ja selvittää miksi pääomasijoittajat luopuvat osasta mahdollista tuottoa sijoittamalla vain osan kohdeyrityksen tarvitsemasta pääomasta, eli vastata kysymykseen "Miksi pääomasijoittajat syndikoivat sijoituksiaan?". Aiemmin tutkijat ovat lähestyneet kysymystä käyttäen kyselylomakkeilla kerättyä aineistoa. Hoppia ja Riederiä (2006) lukuun ottamatta tämä on laatuaan ainoa tutkimus, joka käyttää todellista transaktiopohjaista dataa. Tämä mahdollistaa uusien johtopäätöksien vetämisen ja asian tarkastelun tuoreesta näkökulmasta.

Aineisto

Tutkimuksessa käytetty aineisto koostuu 1232:sta suomessa 1.1.1996-31.3.2006 välisenä aikana tehdystä pääomasijoituksesta. Näissä sijoituksissa oli osallisena 664 kohdeyritystä ja 119 pääomasijoittajaa. Sijoitukset on identifioitu ja kerätty käyttäen Thomson Venture Economicsin (TVE) VentureXpert -tietokantaa. Aineistoa on täydennetty julkisten lähteiden, Suomen Pääomasijoitusyhdistyksen, yritysten tiedotteiden ja internet-sivujen kautta. Yrityskohtainen aineisto on kerätty Voitto+ -tietokannasta.

Tulokset

Tutkimus tunnistaa useita syndikointi päätökseen vaikuttavia tekijöitä: Sijoituksen koko, kohdeyrityksen toimialaan liittyvä riski, sijoittajan kokemus ja ammattitaito, sijoittajan maantieteellinen sijainti ja rahoituskierroksen numero. Suuremmat ja riskisemmät sijoitukset syndikoidaan todennäköisemmin. Kokemattomat sijoittajat sijoittavat todennäköisemmin yhdessä. Ulkomaiset sijoittajat sijoittavat mieluummin yhdessä paikallisten toimijoiden kanssa. Ensimmäisen rahoituskierroksen kaupat syndikoidaan todennäköisemmin, koska hyödyt ovat suurimmat.

Avainsanat: Venture capital, syndication, venture capital syndication motives

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1. Introduction

A syndicate is defined as a group of individuals who must make a common decision under uncertainty that will result in a payoff to be shared jointly among them. Wilson (1968)

1.1 Background

This paper examines the question of what drives venture capital syndication. In a sense, the syndication of venture capital deals is a strange phenomenon: By sharing investment opportunities, the original investor gives up a part of its potential return to rival venture capital companies. It has also been shown that syndicate arrangements are subject to agency conflict and agency costs (Fried and Hisrich, 1995; Manigart *et al.* 2006; Wright and Lockett 2003). Still, almost 30% of European and Finnish venture capital deals are syndicated (EVCA, 2002). Why do profit maximizing VC firms behave this way? What are the perceived benefits that compensate for the costs involved?

The motives for syndication of venture capital investments have been studied by numerous scholars (see e.g. Lerner, 1994; Lockett and Wright, 2001; Manigart *et al.* 2006). Most of the past research has attempted to explain syndication motives by two dominant and competing views: The traditional finance-based perspective and the more modern resource-based perspective. The former relates to risk and the desire to reduce it without reducing expected profits. Following Markowitz (1952), researchers have shown that through syndication, venture capitalists are better able to reach a well-diversified and less risky portfolio. For some venture capital firms, syndication may be the only means to create this well-diversified portfolio, because the firm is too small relative to project size (Manigart *et al.* 2006; Sahlman, 1990; Wright and Robbie, 1998). The resource-based perspective, on the other hand, concerns accessing and sharing information and resources among the syndicating partners, both at the deal selection stage (Manigart *et al.* 2006) and at the management stage of the investment (Bygrave, 1987, 1988). It has been shown that syndicating leads to better selection of deals through improved screening, due diligence and decision making (see e.g. Lerner, 1994; Manigart *et al.* 2006) but that it also adds value to a given investment (see e.g. Brander, Amit and Antweiler, 2002; Bygrave, 1987). Lockett and Wright (2001) found syndication to be driven much more by finance considerations rather than by the exchange of

firm specific resources or deal flow, but many other researchers have shown opposite results. Most recent research has focused on explaining syndication behaviour by a mix of different and mutually exclusive motives (see Hopp and Rieder, 2006 and Manigart *et al.* 2006).

1.2 Research problem and scientific contribution

I study different motives for venture capital syndication, i.e. try to answer the question "Why do venture capital companies decide to syndicate their investments?"

This research contributes to the previous work in the following ways:

1) Instead of using questionnaire-based data, I test different hypotheses on venture capital syndication by using actual company specific deal-based data. Apart from Hopp and Rieder (2006), I have not come across other papers that approach this issue by using quantitative deal-based data.

2) Although I follow Hopp and Rieder (2006) methodologically and test some of the same hypotheses, I also add new hypotheses and approach a few other aspects not discussed by Hopp and Rieder (2006). These include examining the relation of market volatility and syndication activity and the comparison of post-investment performance of syndicated companies compared to non-syndicated peers. To my knowledge, previous research has not approached these issues because of data limitations. I am also able to build hypotheses on deal size and syndication likelihood, unlike Hopp and Rieder (2006). It is naturally also worthwhile to test the credibility of previous hypotheses by using a different set data.

3) The dataset used in this study is unique and is derived and combined from multiple sources.

4) This study is the first study of its kind explicitly focusing on the Finnish market using actual outcome data. In fact, to my knowledge, a study on venture capital motives has not been conducted in Finland, neither using deal-based nor questionnaire-based data. Therefore I am able to draw new conclusions on Finnish venture capital investment behavior.

1.3 Key Findings

I look into the syndication behaviour of VC firms by studying a Finnish dataset of 1232 venture capital transactions between 1.1.1996 and 31.3.2006. I find that investors do use syndication as means of reducing and sharing risk. Syndication likelihood is higher for companies operating in riskier high technology industries and lower for more traditional industries. Venture capital investors that have stated to prefer these fields are also more likely to invest together in order to share resources and expertise. Also geographic factors and investor affiliations affect the syndication decision: Foreign investors are more likely to co-invest. Inexperienced investors are more likely to syndicate because the need for additional expertise is higher. This effect is especially clear when we measure experience by the amount of deals undertaken by the venture capitalist.

Larger deals are more likely to be syndicated because of the need to maintain a well-diversified portfolio. As syndication is used as means of controlling risk, syndication likelihood rises with market volatility. This is an interesting finding since the issue has not been approached before. Syndicated companies grow faster compared to their peers, both in terms of sales and employees. First-round deals are most likely to be syndicated because incentives to reduce the amount of asymmetric information are highest at that time.

1.4 Structure of the study

The paper is organized as follows: Section 1 includes an introduction and a summary of results. Section 2 discusses previous research done in the field. I approach both issues peculiar to venture capital investing in general and different theories and previous research done on venture capital syndication motives. In section 3, I present different hypotheses and discuss the theory behind them. Section 4 presents the methods used in this study and discusses methodological choices and complications. I also describe the dataset and the process of deriving and combining it. In Section 5, I present and discuss the results of regression and other analyses. Section 6 concludes the findings.

2. Literature review

The following contains a literature review on different issues related to venture capital syndication and venture capital financing in general. First, I present characteristics peculiar to venture capital financing compared to conventional forms of financing and discuss how these affect the actual issue this paper focuses on - the syndication behavior and motives of venture capital companies.

2.1 Venture capital financing in general

Venture capital has developed as an important intermediary in financial markets, providing capital to firms that might otherwise have difficulties attracting financing. In the last few decades, the growth of VC financing has spurred a significant amount of research summarized by Gompers and Lerner (2004).

Gompers and Lerner (2001) describe the venture capital process as a continuous "venture capital cycle": The venture capital cycle starts with raising a fund; proceeds through the investment in, monitoring of, and adding value to firms; continues as the venture capital firm exits successful deals and returns capital to its investors; and renews itself with the venture capitalist raising additional funds.

Sahlman (1990) defines venture capital as a professionally managed pool of capital that is invested in equity-linked securities of private ventures at various stages in their development. Venture-capital organizations raise money from individuals and institutions for investment in early-stage businesses that offer high potential but high risk.

In one of the landmark papers of venture capital research, Gompers and Lerner (2001) list characteristics that are specific to the industry: Companies that receive venture capital financing are in general small and young, plagued with high levels of uncertainty and large differences between what entrepreneurs and investors know. These firms typically possess few tangible assets and operate in markets that change very rapidly. Venture capital

organizations finance these high-risk, potentially high-reward projects, by purchasing equity or equity-linked stakes while the firms are still privately held.

Gompers and Lerner (2001) suggest that these characteristics make agency problems, described by Jensen and Meckling (1976), especially difficult when dealing with young venture-backed companies with intangible assets and whose performance is difficult to assess. Entrepreneurs might invest in strategies, research, or projects that have high personal returns but low expected monetary payoffs to shareholders. For example, a biotechnology company founder may invest in a certain type of research that brings great personal recognition in the scientific community, but provides little return to the investor (Gompers and Lerner, 2001). Staged financing has been found to be one of the most effective control mechanism (see e.g. Sahlman, 1990; Gompers, 1995), but the syndication of venture capital investments can alleviate these problems as well by reducing the amount and risk of asymmetric information and by enhancing supervision. A syndicate of investors is better able to supply the entrepreneur with sufficient resources, but also to monitor the entrepreneur with enough diligence. Combination of staged financing and syndication dominates the alternative of giving the entrepreneur all the money upfront (Fluck, Garrison and Myers, 2004). Also Gompers (1995) found that venture capitalists concentrate investments in early-stage companies and high-tech industries where informational asymmetries are likely to be most significant and monitoring most valuable. A third control mechanism, along with staging and syndication, employed to manage the agency costs is the use convertible securities (Sahlman, 1990).

2.2 Motives for venture capital syndication

The main motives for syndication are usually divided in finance-based and resource-based motives. Finance-based motives deal with decreasing risk and increasing return of the investment portfolio, whereas resource-based motives deal with the need to share and access information of other venture capitalists. Lockett and Wright (2001) call these two perspectives risk *sharing*- and risk *reduction* perspectives: By syndicating, venture capital companies aim to *share* the risk via portfolio diversification (finance-based perspective) and on the other hand aim to *reduce* the risk via superior selection and management of investments (resource-based perspective).

Other motives for syndication include enhancing deal flow, the illiquidity of venture capital investments and window dressing, to mention a few. Previous research has been able to identify different syndication motives thoroughly, but their mutual dependencies remain disputed. Most recent research has focused on explaining syndication behaviour by a mix of different and mutually exclusive motives (see Hopp and Rieder, 2006 and Manigart *et al.* 2006). In this section I will look at different motives for syndication, i.e. have a look at different explanations to why venture capital firms form syndicates?

2.2.1 Previous research on venture capital syndication in general

Previous research on venture capital syndication has been summarized by Lockett and Wright (2001) and Manigart et al. (2006), to name a few. Both present the two different sets of motives, finance- and resource-related.

2.2.2 Finance based motives

The traditional approach, developed from finance theory, has been to view syndication as a means of risk *sharing* via portfolio diversification (Lockett and Wright, 2001). By syndicating, venture capital companies share the risk associated with a particular investment by facilitating the spreading of their capital across a greater number of investments and hence reducing overall risk. In the following section, I will present and compare different finance based motives for syndication.

Diversification

The traditional perspective on why venture capitalists syndicate equity investments, developed from finance theory, views syndication as a means of risk sharing via portfolio diversification. (Lockett and Wright, 2001)

The risk associated with any investment can, in general, be divided into two groups: unique (non-systematic or company) risk and market (systematic) risk (Lockett and Wright, 2001). Unique risks relate to internal company factors associated with the skills of the entrepreneur,

the growth and profitability profile of the firm, its technology, etc. (Ruhnka and Young, 1991) and can be reduced via diversification. Traditional financial theory shows that by spreading investments across a greater number of investments that do not covary, risk can be reduced without reducing expected return (see Markowitz, 1952).

For VC investors, however, a fully-diversified portfolio is not as easy to obtain as it is for institutional investors who invest in listed stock. This is because smaller firms do not necessarily have sufficient funds for achieving diversification without syndicates i.e. the firm is too small relative to project size (Manigart *et al.* 2006; Sahlman, 1990 and Wright and Robbie, 1998). For institutional investors who invest in listed and liquid equities a balanced and well-diversified portfolio is relatively simple and easy to create. But especially for smaller VC firms, syndication may be the only option to take on larger deals without unbalancing the portfolio.

Risk Sharing and Asymmetric Information

Another risk reducing function of syndicating relates to limiting the risk of asymmetric information. Different to other institutional investors, venture capitalists face an informational disadvantage as they do not invest in public quoted companies (Fama, 1991). Despite a thorough due diligence process, the risks and uncertainties involved in the target company may in some cases become clear only after the initial investment has been made (Lockett and Wright, 2001). Syndication divides the risk among other investors and may also lead to better decisions about whether to invest in firms, especially in the first round of financing (Lerner, 1994). Sah and Stiglitz (1986) have shown that hierarchical organizations, in which investments are made only if several independent observers agree, may be superior to ones where projects are funded after one affirmative decision. Since this motive is both finance- and resource-related, I will discuss it further in the section that presents resource based motives for syndication.

Illiquidity of VC investments

Another finance-related motive for syndication relates to the illiquidity of VC investments (Lockett and Wright, 2001). Because of minimum investments periods and lock-up requirements, equity cannot be continuously traded and due to ex-ante informational asymmetry, the real risk of the investment may only be fully revealed once the investment has been made. If the risk associated with the investment turns out be higher than anticipated,

it may be difficult to adjust the portfolio by divesting because of the illiquid nature of the VC market. Syndication, therefore, provides a means of sharing risk on a deal-by-deal basis that may help to reduce overall portfolio risk (Manigart *et al.* 2006).

Reputation

Past performance has been shown to have an effect on VC firms' ability to raise new funds (see e.g. Norton, 1995; Wright and Robbie, 1998) and venture capitalists may want to diversify their holdings to insure that they do not acutely underperform their peers due to a single deal. This may increase VC firms' willingness to syndicate and share investment-specific risk with their competitors. Many contracts establishing venture capital partnerships explicitly prohibit investing in other venture funds (Gompers and Lerner, 1996). By investing in many syndicated investments, however, a venture fund can achieve much the same effect (Lerner, 1994).

Gompers and Lerner (1999) have shown that the oldest and largest venture capital groups, i.e. the ones with best reputation, receive a greater share of the capital gains from their investments than do their less established counterparts. Gompers and Lerner (2001) suggest that a venture capitalist that is just getting started will work harder even without explicit pay-for-performance incentives, because if the fund establishes a good reputation, either for selecting attractive investments or adding value to firms in its portfolio, the venture capitalist will gain additional compensation in later funds. Alternatively, a less-established venture capital company can improve its reputation by syndicating with well-established and respected partners, which should lead to higher returns in the future.

Hsu (2004) has shown that portfolio companies are willing to pay to be backed by brand-name VCs. The brand also helps in achieving a successful exit. Well-established venture capital investors help reduce the uncertainty associated with the company in the case of an IPO (Campbell, 2003), which affects the valuation.

Window dressing

Another rationale for VC firms to syndicate and to limit their underperformance compared to their peers is "window dressing" (Lerner, 1994). Previous researchers (e.g. Lakonishok *et al.* 1991) have suggested that because investors may examine not only quarterly returns but also end-of-period holdings, mutual fund portfolio managers "window dress", i.e. sell the shares

of losers and buy the shares of winners before reporting, in order to make their performance look better and to impress investors by their ability to pick the market outperforming shares. Lerner (1994) suggested that VC fund managers may act similarly and "window dress" their portfolio. He found evidence that supports the hypothesis of "window dressing" and claims that "established venture capitalists are significantly more likely to invest for the first time in later rounds when valuations have increased sharply." "Venture capitalists may similarly make investments in the late rounds of promising firms, even if the financial returns are low. This strategy allows them to present themselves in marketing documents as investors in these firms (Lerner, 1994).

Portfolio size

Syndication has been shown to have an effect on the size of the portfolio. Cumming (2006) has shown that, *ceteris paribus,* syndication increases the size of the portfolio. For smaller venture capitalists, syndication may be the only means of increasing the size of the portfolio.

2.2.2.1 Drawbacks of syndicating and diversifying

Although diversifying has recognized and significant benefits, the benefits of diversifying a VC portfolio are not entirely undisputed. Expanding the portfolio comes with an increase in managerial costs, which makes diversifying less profiTable. VC firms with larger portfolios are able to give less support to single portfolio companies, which might lead them to demand larger shares of the profit. Advising firms is time consuming and creates a trade-off between intensity of advice and portfolio size. The empirical evidence supports the theoretical proposition that there is a trade-off between VC assistance to entrepreneurial firms in the VC's portfolio and the size of the portfolio (Kanniainen and Keuschnigg, 2003).

The effectiveness of VC portfolio diversification as a tool for controlling risk is somewhat unclear as well. Manigart *et al.* (2002) show that specialisation is more effective at controlling risks and adding value than the finance theory view in which diversification is essential when spreading and reducing risk.

2.2.3 Resource-based motives

Another dominant view to why venture capitalists syndicate relates to resource-based motives (e.g. Bygrave, 1987; Lockett and Wright, 2001; Manigart *et al.* 2006). Researchers have tried to explain venture capitalists' desire to syndicate by access to a wider pool of resources. Resource-based perspective views syndication as a response to the need to share and access information in the selection and management of investments (Lockett and Wright, 2001). Finance-based motives relate closely to risk *sharing*, whereas resource-based motives aim at *reducing* company specific risk. Resources are required for reducing the various dimensions of company specific risk at both ex-ante and ex-post decision making stages in the venture capital process. Ex-ante decision making relates to the selection of investments, whereas ex-post decision making relates to the subsequent management of investments (Lockett and Wright, 2001).

Asymmetric information and enhanced selection

Although syndicate arrangements themselves are subject to agency conflict and agency costs (Fried and Hisrich, 1995), they can also help solve problems that arise from informational asymmetry (see e.g. Admati and Pfleiderer, 1994; Lockett and Wright, 2001).

Lerner (1994) suggested based on Sah and Stiglitz (1986) that syndicating first-round venture investments with well-established partners may be a way to better assess the information provided by potential portfolio companies and, eventually, lead to better decisions about whether to invest in firms. Lerner (1994) emphasized that need of a second opinion is greatest at the stage of initial investment. He found evidence that established VC firms syndicate with one another in first-round investments and with less established organizations in later rounds. Bygrave (1987; 1998) suggested that syndication is a means to share and access information of other venture capitalists, both in the selection and the management stage of the investment. He concluded that the main motive for syndication was rather the sharing of experience and other intangible resources than capital restraints and the spreading of financial risk.

Syndication reduces the potential for adverse selection if it changes the means by which an investment is made because it produces a greater range of analytical skills among investors

(Lockett and Wright, 2001). A greater range of analytical skills are often needed when a VC firm operates outside its own field of expertise or in a field that is undeveloped and uncharted. Individual VCs tend to have investment expertise that is both sector-specific and location-specific (Hochberg, Ljungqvist and Lu, 2005). Syndication helps diffuse information across sector boundaries and expands the spatial radius of exchange, thus allowing VCs to diversify their portfolios (Sorenson and Stuart, 2001).

Syndication can also help solve problems that arise from informational asymmetry (e.g. Admati and Pfleiderer, 1994; Lockett and Wright, 2001). Entrepreneurs might not be willing to reveal all information to potential investors and a second opinion can be, once again, valuable. By syndicating venture capital investors are better able to assess the true value of the target investment.

2.2.4 Other Motives

Deal flow

Irrespective of whether syndication facilitates the reduction of risk via portfolio diversification or specialisation, deal flow is vital to a venture capital firm (Lockett and Wright, 2001). In addition to the finance- and resource-based perspectives, generating higher and steadier deal flow is one of the main motives for syndication (see e.g. Lockett and Wright, 2001; Manigart *et al.* 2006; Sorenson and Stuart, 2001; Wright and Lockett ,2003; de Clercq and Dimov, 2004. Having a strong syndication network increases the status of a VC firm (Lerner, 1994), increasing its likelihood of being invited into a syndicate network (Manigart *et al.* 2006).

When VC firms syndicate deals, they often expect other parties to return the favour in future. In a study on investment bank syndication behaviour, Pichler and Wilhelm (2001) found that although syndicates are dissolved upon deal completion, membership stability across deals represents a barrier to entry. This suggests that it may be economically justifiable and wise to share some of the most promising deals with other well-established investors and thereby guarantee the availability of and access to these high-quality deals in future as well. It is important for venture capitalists to be in a position to compete for as many deals as possible

so that they can make their investment selections from a wide supply of deals (Lockett and Wright, 2001).

Venture capitalists should not offer syndication to just anyone. They should choose other investors and firms that are most able to reciprocate. These are usually the well-established venture firms. Supporting this theory, Lerner (1994) found that venture capitalists are less likely to offer such opportunities to less established venture organizations. Deal flow becomes increasingly important in times when the competition for deals is great and the availability of money to invest is high (Lockett and Wright, 2001). By syndicating, VC firms can increase both quantity and quality of the available deals also at peak times.

The deal flow motive is probably not equally important for all VC firms. Manigart *et al.* (2006) suggest that the deal flow motive is more important for larger VC firms because they simply need to invest in more deals than small VC firms.

Reputation is an important factor in creating and sustaining a healthy deal flow. In mature VC markets, the top-tier venture capitalists see the best deals, the second tier see the next tier and so on. As discussed earlier, less-established venture capitalists can affect and improve their reputation by syndicating with well-known partners, which results in a more steady flow of high quality deals.

Better position in venture capitalist network

Another possible explanation to venture capital syndication consists of networking benefits. By syndicating venture capital companies form relationships and possible alliances with other venture capitalists. Although syndicates are in theory dissolved upon deal completion, membership stability across deals is considerable and represents a barrier to entry (Pichler and Wilhelm, 2001). The composition of syndicates and their participants change over time, but the network as whole should be considered as a static factor in the VC business environment.

As Hochberg, Ljungqvist and Lu (2005) point out, syndication relationships affect the two main drivers of a VC's performance: The ability to source high-quality deal flow (i.e. select promising companies) and the ability to nurture investments (i.e. add value to portfolio companies).

These networks go well beyond the actual investors of a certain company: VC companies bring service providers, head hunters, patent lawyers, investment bankers etc. to the networks and to help the portfolio companies succeed (Hochberg, Ljungqvist and Lu, 2005). Researchers have shown that a syndicate is able to provide portfolio companies more support and more value adding resources than a single investor (Hochberg, Ljungqvist and Lu, 2005; Wright and Lockett, 2003). Companies that receive syndicated funding should therefore be more successful than their counterparts with only one investor.

Network position affects the actual fund returns as well: Hochberg, Ljungqvist and Lu (2005) measured fund performance by the proportion of its investments that are successfully exited through an IPO or a sale to another company and found that VC firms that enjoy more influential network positions perform significantly better and that their portfolio companies are more likely to survive to subsequent financing and to eventual exit. They measured fund centrality with five factors - the number of VCs it has relationships with, the frequency with which it is invited to co-invest in other VCs' deals, its ability to generate such co-investment opportunities in the future by syndicating its own deals today, its access to the best-connected VCs and its ability to act as an intermediary bringing together VCs with complementary skills or investment opportunities - and found that it has its effect on the actual IRR of the fund as well: A one-standard-deviation increase in network centrality increases exit rates by around 2.5 percentage points (sample average 34.2%), which they estimate is a roughly equivalent to a 2.5 percentage point increase in fund IRR (sample average 15%).

A firm's success depends on the capability of its partners and its access to capable partners is highly dependent on its prior set of alliances. Reputation for successful cooperation can be an asset in obtaining financing and furthering cooperative ties. In general syndicating with the same partners build trust in their investment appraisal, monitoring and value-adding capabilities, thereby reducing the need for the VC firm to actively do so (Manigart *et al.* 2006; Sorenson and Stuart, 2001; Wright and Lockett, 2003).

3. Theory and hypothesis

In this section, I present different hypothesis and discuss the theory behind them.

3.1 Hypotheses

3.1.1 Hypotheses on deal size and syndication likelihood

According to Wright and Robbie (1998) size variables play an important role for the decision to syndicate an investment. Based on Wright and Robbie (1998) I hypothesize that syndication is more likely with larger deals than with smaller ones and expect the deal size to be one of the most important drivers of the syndication decision. As discussed earlier, syndication increases the level of diversification and the number of portfolio companies, (see e.g. Cumming, 2006) and may be the only way for a VC firm to obtain a well-diversified portfolio if the relative size of the project is too large (Manigart *et al.* 2006; Sahlman, 1990; Wright and Robbie, 1998). Hypothesis H1 is interesting since Hopp and Rieder (2006) do not control for deal size in their regression models due to data constraints:

H1. Syndication likelihood increases with the deal size.

3.1.2 Hypotheses on investor experience, industry knowledge and syndication behaviour

Investors that invest outside their own field of expertise are more likely to syndicate. Based on Bygrave (1987; 1988), Hopp and Rieder (2006) and Brander, Amit and Antweiler (2002), I expect an unfamiliar business environment to increase syndication likelihood, because the need for additional information and expertise is higher. Overall experience and expertise on venture capital investing on the other hand should reduce syndication likelihood, since the benefits of sharing information and resources are smaller.

I measure experience and industry knowledge by the number of investments the venture capital investor has made along with the age and affiliations of the investor. Four separate hypotheses are formed:

H2. Inexperienced investors are more likely to invest in a syndicate because the need for additional expertise is higher.

Experience is measured by the number of investments investor has made along with the age of the investor.

H3. Investors that are not primarily venture capital investors are more likely to invest in a syndicate.

I use investor affiliations, i.e. investor type, as proxy. Full-time venture capitalists are less likely to syndicate whereas banking or corporate related investors, for whom venture capital is not the main field of business, are more likely to invest in a syndicate.

H4. Syndication likelihood is higher for investors investing outside their own geographic area.

Due to differences of legislation and business procedures between different countries and geographic areas, investors operating outside their own geographic field of expertise are more likely to syndicate compared to local peers.

H5. VC investors that focus in high tech industries are more likely to invest together.

Following Hopp and Rieder (2006) and Bygrave (1988), I use industry dummies as a proxy for riskiness of the deal. Bygrave (1987) compared syndication behaviour in conservative consumer industry and in more risky computer industry in the USA and showed that there is a clear tendency of co-investing when the investment target operates in a volatile field of industry. Gompers (1995) got similar results and found that VC companies concentrate investments in early-stage companies and high-tech industries where informational asymmetries are likely to be most significant and monitoring most valuable. When investing in young companies that operate in fast-developing fields, a venture capitalist who originates

a deal will often look to bring in other venture capital firms (Gompers and Lerner, 2001). Syndication is more likely because the need for additional resources is higher.

3.1.3 Hypotheses on financing stage and round of the target company and syndication behaviour

H6. First-round deals are most likely to be syndicated, because incentives to syndicate are highest at that time.

Based on Lerner (1994) and Sah and Stiglitz (1986), I hypothesize that syndication is most likely in the first round. Lerner (1994) has shown that syndicating first-round venture investments may lead to better decisions about whether to invest in firms. He emphasized that the need of a second opinion is greatest at the stage of initial investment. Benefits of sharing information and resources diminish at later rounds of financing and syndication should therefore be most likely at first round.

H7. Syndication likelihood is higher for early-stage investments.

Bygrave (1987) has shown that there is more syndication in early-stage than in later-stage investments. He concluded that the main motive for syndication was rather the sharing of experience and other intangible resources than capital restraints and the spreading of financial risk, i.e. reducing risk via superior selection. On the other hand, Shepherd and Zacharakis (2002) have shown that there is less syndication in riskier U.S. early stage deals than in less risky but larger expansion stage deals. This was explained by the fact that early stage deals are small enough for VC companies to invest in without unbalancing their portfolio even without syndication. Following Shepherd and Zacharakis (2002) and Wright and Robbie (1998) I test the hypothesis, but expect the deal size to be more important than the financing stage of the deal, when explaining syndication behaviour of VC companies.

It should be noted that a large portion of my dataset consists of small deals and that this may show in the results.

3.1.4 Hypotheses on company and market risk and their effect on syndication likelihood

H8. Venture capital companies aim to control risk via syndication, and syndication likelihood is therefore higher at turbulent times than at steady times, when measured with market volatility.

As explained earlier, syndication is often seen as a means of controlling risk (see e.g. Bygrave, 1987 and Hopp and Rieder, 2006). It is therefore plausible that venture capital investors are more willing to syndicate at turbulent times when the systematic risk is high in order to reduce the company-specific risk from a specific investment.

H9. Higher business risk increases the incentives to syndicate and therefore the syndication likelihood.

Following Hopp and Rieder (2006) and based on Bygrave (1987; 1988), I use the age of the company at investment as proxy for firm specific risk: Younger firms are more likely to fail and as such firm age at investment can serve as a proxy for the riskiness of a venture. Strategy and organizations scholars have long noted that young firms have higher failure rates than established firms (Baum, Calabrese and Silverman, 2000). Also Brander, Amit and Antweiler (2002) have shown that the volatility of the performance of syndicated investments is larger than that of stand-alone investments, implying that syndicated investments are riskier. Alliances are likely to be particularly beneficial to young and resource-constrained firms. Development of an appropriate alliance network at founding may enable a young firm to enjoy relationships and resources typical of a more established firm, hence overcoming liabilities of newness and/or smallness (Baum, Calabrese and Silverman, 2000).

Following Hopp and Rieder (2006) and Bygrave (1988), I also use industry dummies as another proxy for riskiness of the deal. Bygrave (1987) has shown that there is more co-investing when there is a higher level of uncertainty. Companies that operate in younger and riskier industries seem to attract more syndication than those in mature and developed industries. Lerner (1994) emphasized that need of a second opinion is greatest at the stage of initial investment. This need is greatest when VC firms operate outside their own field of

expertise. Bygrave (1987) compared syndication behaviour in conservative consumer industry and in more risky computer industry in the USA and showed that there is a clear tendency of co-investing when the investment target operates in a volatile field of industry. Gompers (1995) got similar results and found that VC companies concentrate investments in early-stage companies and high-tech industries where informational asymmetries are likely to be most significant and monitoring most valuable. When investing in young companies that operate in fast-developing fields, a venture capitalist who originates a deal will often look to bring in other venture capital firms (Gompers and Lerner, 2001). Combination of staged financing and syndication dominates the alternative of giving the entrepreneur all the money upfront (Fluck, Garrison and Myers, 2004). Gompers (1995) has shown that venture capitalist do concentrate investments in high technology industries where informational asymmetries are most likely to be most significant and monitoring most valuable.

3.1.5 Hypotheses on investment syndication and target company growth and performance

H10. Companies that receive syndicated funding grow faster.

Target companies that get syndicated funding, grow faster than their counterparts with stand-alone funding. This faster growth may be explained by better resources of the syndicate both before and after the initial investment. A syndicate is better able to determine the true value of an investment project and simply able to choose better projects for funding compared to stand-alone investors. On the other hand, a syndicate has wider resources to support and manage the investment after the actual financial transaction.

Growth is measured with sales and employee growth.

H11. Companies that receive syndicated funding perform better.

Performance is measured with the change in ROI and the change in operating margin.

In general, there are a few reasons behind these hypotheses: Better selection at the pre-investment stage, wider resources and support at the post-investment stage, enhanced credibility and the growth-accelerating effect of alliances.

Lerner (1994) suggested based on Sah and Stiglitz (1986) that syndicating first-round venture investments with well-established partners may be a way to better assess the information provided by potential portfolio companies and, eventually, lead to better decisions about whether to invest in firms. A syndicate is therefore able to pick better companies for investment compared to stand-alone investors.

Stuart, Ha Hoang and Hybels (1999) and Stuart (1998) found technology start-ups with prominent alliance or exchange partners to perform better than comparable ventures without endorsements. They found that relationships with well-regarded partners positively affect sales growth rates and resulted in faster initial public offerings at higher valuations than start-ups without similar connections.

This improved performance comes from both a wider set of resources and increased credibility: Faced with great uncertainty about the quality of young companies, third parties rely on the prominence of the affiliates of those companies to make judgements about their quality. Young companies "endorsed" by prominent exchange partners will perform better than otherwise comparable ventures that lack prominent associates (Stuart, Ha Hoang and Hybels, 1999). Renowned partners help decrease the risk of asymmetric information, so to speak.

Alternative, or complementary, explanation to why companies that receive syndicated funding should grow faster, is that syndicates are able to provide portfolio companies with a wider set of resources: By forming alliances, start-ups can access social, technical and commercial competitive resources that normally require years of operating experience to acquire (Ahuja, 2000). These alliances and networks can also provide more opportunities for learning and a decreased risk of intra-alliance rivalry (Baum, Calabrese and Silverman, 2000). Hopp and Rieder (2006) study the relation between syndication and target company growth as well, but do not include measures of performance in their analysis.

3.1.6 Summary of hypotheses

Table 1 below summarizes hypotheses presented in this chapter. Hypotheses are classified as presented in the chapter.

Table 1:
Summary of Hypotheses

Hypotheses on deal size and syndication likelihood	
H1	Syndication likelihood increases with the deal size
Hypotheses on investor experience and industry knowledge and syndication behaviour	
H2	Inexperienced investors are more likely to invest in a syndicate because the need for additional expertise is higher
H3	Investors that are not primarily venture capital investors are more likely to invest in a syndicate
H4	Syndication likelihood is higher for investors investing outside their own geographic area
H5	VC investors that focus in high tech industries are more likely to invest together
Hypotheses on financing stage and round of the target company and syndication behaviour	
H6	First-round deals are most likely to be syndicated, because incentives to syndicate are highest at that time
H7	Syndication likelihood is higher for early-stage investments
Hypotheses on company and market risk and their effect syndication likelihood	
H8	Syndication likelihood is higher at turbulent times than at steady times, when measured with market volatility
H9	Higher business risk increases the incentives to syndicate and therefore the syndication likelihood
Hypotheses on investment syndication and target company growth and performance	
H10	Companies that receive syndicated funding grow faster
H11	Companies that receive syndicated funding perform better

The table presents a summary of hypotheses presented in chapter 3. Hypotheses have been classified in different groups as presented in chapter 3.

4. Data and methodology

This section presents the data set and the methodology used in this study. First I discuss the formation of the data set and present different data sources. In the second part I describe different tests, models and variables used for analysis.

4.1 Data

In this section I describe my data sources and how the sample was constructed. I discuss the choices made when eliminating certain parts of the data and other methodological complications.

4.1.1 Data sources

The sample used in this paper consists of 1232 venture capital transactions in Finland during a period of 1.1.1996-31.3.2006 involving 664 target companies and 119 venture capital investors. The transactions have been identified and compiled by using Thomson Venture Economics (TVE) VentureXpert database and complemented using public sources, including the Finnish Venture Capital Association, public disclosures of financing deals and corporate web sites. This set of deal data was matched with company specific data from the Voitto+ database. Daily price data for HEX General Index has been drawn from Thomson Financial's Worldscope database.

4.1.2 Notes on data

Company specific figures and investment size was not available for all deals. Table 2 in the next page reports the availability of data.

Table 2:
Availability of Data for Target Companies

Target Companies	Observations
Total Sample (# of Companies)	664
Field of Industry	664
Investment Stage	624
Company Age at Investment	387
Sales, Personnel and other Characteristics	356

The table above presents the availability of data for the target companies. Total sample includes 1232 venture capital transactions between 1.1.1996 and 31.3.2006. These transactions were divided among 664 companies. The data for transactions, field of industry, investment stage and company age has been obtained through Thomson Venture Economics Database. Data for company sales, personnel and other characteristics has been obtained from Voitto+ database. The data has been complemented through public disclosured and other public sources for some companies.

4.2 Methodology

In this section I describe different methods and tests used for analysis.

4.2.1 Methodological foreword

For the purposes of my research, it should be clearly defined which deals are considered syndicated and which simply companies with multiple investors at different points of time. In previous research (Bygrave 1987, Lerner 1994, Wright and Lockett 2003, de Clercq and Dimov 2004), an investment has been considered syndicated if at least two venture capital firms invest simultaneously in the same portfolio company within the same investment round. Although my dataset includes information on the amount of rounds each of the 664 portfolio companies have received, exact information on staging of the investments, i.e. who invested how much and when, is available only for a subset of investments. Using only the subset of companies for analysis would have reduced the sample substantially, placing bias on larger and more mature deals with better information available. This would have resulted in less meaningful results. This is why I use the total amount of investors that have invested in a portfolio company during its life span as an indicator for syndication. It may well be that there are investors who did fund a portfolio company during the first financing rounds on their own and not through syndicate. However, if this same company gets funded by more investors at later stages, who might even replace the original investor, the company is

recorded in the data set as a syndicated company because it appears in two or more transactions and more importantly with two or more different investors.

It should be noted, that caused by this procedure, more deals are considered syndicated than when using a deal-specific approach. This causes the syndication ratio a slight bias upwards, compared the traditional definition of syndication, which should be kept in mind when interpreting and when comparing the results with previous research done on the topic. Although the analyses in this paper are carried out on the basis of the broader definition of syndication, it does not impede me from making conclusions on syndication patterns in Finland or comparing them with previous research.

4.2.2 The Syndication Ratio

Syndication ratio is calculated as the share of syndicated deals of all deals.

(1) $SyndicationRatio = Syndicated\_Deals / All\_Deals$

4.2.3 The Models

I estimate both "Investor Characteristics" models using OLS regression. For the "Funded Firm Characteristics" model LOGIT regression is used because the dependent variable is a dummy, i.e. receives only a value of 0 or 1. The following presents different models and their specifications.

4.2.3.1 Funded Firm Characteristics Model

In order to see whether a higher degree of co-investing in riskier industries and with riskier companies can be confirmed with the database, a multivariate logit model is run with the syndication variable as the dependent variable and the target company specific information along with industry dummies as the explaining variables. I have divided the model in four

different blocks in order to test the statistical significance and overall reasonableness of the model.

4.2.3.2 VC Investor Characteristics Models

I test the effect of venture capital investor characteristics to syndication activity with two separate models. The first model includes all investors that have invested between 1.1.1996 and 31.3.2006. The second model excludes the investors that have made only 1 investment during that period. The first model, "Investor Type, Industry Focus and the Likelihood of Investment Syndication (All Investors)" is specified as follows:

(2)

$$y(Synd\_Ratio) = \alpha + \beta_i(Nr\_Of\_Inv, Ind\_Dummy, Affil\_Dummy, LN\_Ave\_Inv, Firm\_Age) + \varepsilon_i$$

Where

$Synd\_Ratio$	is the syndication ratio, as calculated in formula (1)
Nr_Of_Inv	is the number of investments in sample that are made by specified venture capital investor.
$Firm\_Age$	is the age of the venture capital investor at the time of investment.
LN_Ave_Inv	is the napierian logarithm of the average size of the investment made in a specified company by a specified investor.

$Affil\_Dummy$	is the venture capitalist affiliation dummy, which receives a value of (1) if the investor has specified affiliations and a value of (0) if not.
Ind_Dummy	is the venture capital's stated industry focus, which receives a value of (1) if the investor has a specified focus in certain industry
ε_i	is the error term.

The second model, "Industry Focus and the Likelihood of Investment Syndication (Excluding One-Time Investors)", is specified as follows:

(3)

$$y(Synd\_Ratio) = \alpha + \beta_i(Nr\_Of\_Inv, Ind\_Dummy, Affil\_Dummy, LN\_Ave\_Inv, Firm\_Age) + \varepsilon_i$$

Where

$Synd\_Ratio$	is the syndication ratio, as calculated in formula (1)
Nr_Of_Inv	is the number of investments in sample that are made by specified venture capital investor.
$Firm\_Age$	is the age of the venture capital investor at the time of investment.
LN_Ave_Inv	is the napierian logarithm of the average size of the investment made in a specified company by a specified investor.

$Affil\_Dummy$	is the venture capitalist affiliation dummy, which receives a value of (1) if the investor has specified affiliations and a value of (0) if not.
Ind_Dummy	is the venture capital's stated industry focus, which receives a value of (1) if the investor has a specified focus in certain industry
ε_i	is the error term.

The "Funded Firm Characteristics and the Likelihood of Investment Syndication" model specification for the final regression is as follows:

(4) $Y(Syndication) = f(Age, LN(Sales / Employees), Current\_ratio, Industry\_Dummy) + \varepsilon_i$

Where

$Y(Syndication)$	is the syndication dummy, which receives a value of (1) if the investment has been syndicated and a value of (0) if not.
Age	is the target company age at the time of capital infusion.
$LN(Sales / Employees)$	is the napierian logarithm of target company sales divided by the number of employees at the year of investment.
$Current\_ratio$	is the current ratio of the target company at the year of investment as reported and defined by Voitto+ database.

Industry _ Dummy	is the industry dummy, which receives a value of (1) if the investment has been in made in a particular industry and a value of (0) if not.
ε_i	is the error term.

I have estimated all models using SAS Enterprise Guide 3.0. Results are reported in chapter 5.

4.2.4 Other Tests and Methods

I test hypothesis H6 on market volatility and syndication likelihood using Pearson Correlation. R-Squared and Chi-Squared tests are used and reported for all models to test the validity and the goodness of fit of the models. T-tests for equal means are undertaken for investor and target company characteristics.

5. Results

In this chapter, I report results regarding the hypotheses of this study presented in chapter 3. First I present descriptive statistics and discuss the availability of data. In the latter part I present results for different tests and models and discuss how they affect hypotheses created in chapter 3.

5.1 Descriptive Statistics and the Availability of Data

In this section I present descriptive statistics for the sample, both the target companies and the investors. I describe the whole sample and explain limitations and the elimination of certain parts of the data set.

5.1.1 Whole Sample

The total sample used in this study consists of 1232 VC transactions involving 664 target companies and 119 venture capital investors. The transactions including these participants all took place between 1.1.1996 – 31.3.2006. Of these 664 companies, information was available as follows: Field of industry (664 observations), investment stage (624 observations), company age at investment and (387 observations), company sales, personnel and other specific characteristics (356 observations). The availability of the data for target companies is presented in Table 2 on page 27.

Of the 1232 transactions included in the sample, 307 were syndicated and 925 not syndicated. This yields a "syndication ratio" of 25 percent, i.e. 25 percent of all financing transactions in the sample were syndicated. This means that in 307 financing transactions, there was more than one investor. Descriptive statistics for all transactions are presented in Table 3 on the next page.

Table 3:
Firm Characteristics: Descriptive Statistics for All Transactions

	Observations	Syndicated		Syndication
		Yes	No	Ratio
Biotech	72	13	59	0.18
Communications and media	127	41	86	0.32
Computers (hardware)	35	9	26	0.26
Computers (software)	253	72	181	0.28
Consumer related	99	26	73	0.26
Electronics	93	19	74	0.20
Industrial/energy	158	34	124	0.22
Internet	124	41	83	0.33
Medical/health	120	20	100	0.17
Other products	151	32	119	0.21
Whole Sample	1232	307	925	0.25

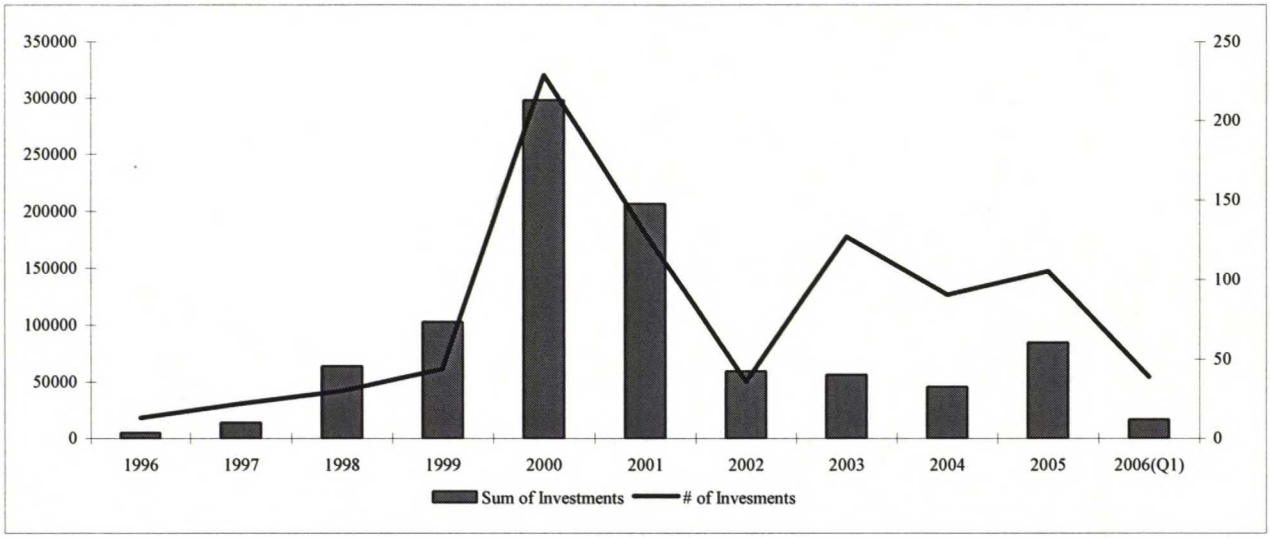
The table above presents descriptive statistics for all transactions included in the dataset and the syndication ratio. Observations are divided in different industry groups. The data has been obtained through Thomson Venture Economics Database. Industry classifications are reported as defined and published by TVE. Syndication ratio is calculated by dividing the amount of syndicated deals by the amount of all deals (synd ratio = syndicated deals / all deals). An observation is considered syndicated if multiple investors made simultaneous investments in the company.

This study focuses on syndication behavior in portfolio company level, combining all financing transactions. This has forced me to make a small simplification: A target company is considered a "collective investment", i.e. the financing has been syndicated, if it has received money from multiple investors during its lifespan, regardless whether the investors invested money simultaneously or not. This increases the proportion of syndicated observations in the sample and yields a "syndication ratio" of 38 percent.

Table 4, "Investment and Syndication Activity", on the next page presents VC investment and syndication activity between 1.1.1996 and 31.3.2006. The graph shows that the overall VC activity was highest at years 2000 and 2001. Syndication activity on the other hand peaked at 1999 and 1998. All data in the chart has been obtained from Thomson Venture Xpert and is reported as published by TVE. The figures have been calculated as the sum of all deals published by TVE. "Sum of Investments" is downward biased because 360 financing transactions are not included in the sample, since the size of the investment is not reported by TVE for those deals.

Next chapter reviews the sample and descriptive results on portfolio company level.

Table 4:
Investment and Syndication Activity



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006(Q1)
# of Investments	13	22	30	44	229	129	36	127	90	105	39
Sum of Investments ($000)	5139	13964	64079	102793	298268	206644	59565	56398	45774	84569	16907
Average Investment ($000)	395	635	2136	2336	1302	1602	1655	444	509	805	434
Syndicated deals / All deals	0.23	0.36	0.77	0.84	0.62	0.60	0.61	0.39	0.49	0.45	0.38

The chart above reports venture capital investment and syndication activity between 1.1.1996 and 31.3.2006. All data has been obtained from Thoson Venture Xpert and is reported as published by TVE. The figures have been calculated as the sum of all deals published by TVE. "Sum of Investments" is downward biased because 360 financing transactions are not included in the sample, since the size of the investment is not reported by TVE for those deals. "# of Investments" states the number of investments made by investors during the year. "Sum of Investments ($000)" is the sum of all these investments. "Average Investment ($000)" is the average size of the investment that year. "Syndicated deals / All deals" is the share of syndicated deals of all deals.

5.1.2 Summary Statistics for Investors

Table 8 on page 40 presents summary statistics for venture capital investors. I classify investors in different categories, depending on their affiliations on financial institutions, corporations or public sources. First, I classify a venture capital investor "Public" if the fund or organization behind it is managed by a governmental institution. For example Sitra (Finnish National Fund for Research and Development) and Suomen Teollisuussijoitus (Finnish Industry Investment) are classified as public venture capital investors. Second, I classify a venture capital investor "Private Equity Firm" if there are no strings to other firms, corporations or banks attached. Third, I classify a VC investor a "Corporate" investor, if the investor is a corporation, has strings to a large corporation, or if the investee company has been set up by a larger corporation for investment purposes (e.g. Intel Capital, Time Warner Investments). Investors are classified "Banking" dependent if they are, or have been set up by a private bank. "Other Financial Institutions" are affiliates of insurance firms and other such financial institutions. The classification has been drawn from Thomson Venture Xpert database and modified for the purposes of this study by combining certain minor groups into larger entities.

The sample includes 8 investors that have made more than 30 investments during the timeframe of this study. These investors are presented on the next page in Table 5.

Table 5:
VC Investor Characteristics: 10 Most Active Investors

	No. Of Investments	Nationality	Reported CAP ($Mil)	Syndicated		Syndication Ratio
				Yes	No	
Sitra	119	Finnish	131.0	56	63	0.47
CapMan Capital Management Oy	60	Finnish	2256.5	30	30	0.50
Finnish Industry Investment	60	Finnish	222.9	45	15	0.75
Innofinance Oy	51	Finnish	21.0	23	28	0.45
Midinvest Management Oy	46	Finnish	37.6	20	26	0.43
3i Group PLC	44	U.K.	7000.0	30	14	0.68
Sentica Partners	41	Finnish	18.6	13	28	0.32
Eqvitec Partners Oy	34	Finnish	255.7	25	9	0.74
Helmet Business Mentors Oy	24	Finnish	62.8	16	8	0.67
TeknoVenture Management Oy	22	Finnish	46.4	7	15	0.32

The table presents 10 most active investors, their nationalities, capitalisations and the syndication ratio. The data has been obtained through Thomson Venture Economics Database. "No. of Investments" is the number of investments the investor has made in the sample. Reported CAP ($Mil) gives the capitalisation of the company, as stated in TVE. Syndication ratio is calculated by dividing the amount of syndicated deals by the amount of all deals (syndication ratio = syndicated deals / all deals).

The "Syndication Ratio" divides the number of co-invested deals all deals participated by the investor in the sample. The higher the Syndication Ratio of an investor, the more he or she tends to invest in portfolio companies that are funded through shared investment. Table 6 on the next page shows that investments made by banking or corporate related investors are more likely to be syndicated than investments made by public or private equity firms or funds. This makes sense, since banking or corporate related investors do not have the expertise and more importantly the resources to selecting and managing venture capital investments outside their own field of business. According to Lerner (1994), the need of a second opinion, i.e. the need to syndicate, is greatest at the stage of initial investment, especially when VC firms (or other investors) operate outside their own field of expertise. As Lockett and Wright (2001) state, resources and expertise are required for reducing the various dimensions of company specific risk at both ex-ante and ex-post decision making stages in the venture capital process, ex-ante decision making relating to the selection of investments and ex-post decision making relating to the subsequent management of investments. It is neither the bank's nor the corporation's business to valuate or manage and support the target companies after initial investments and syndicating is thus sensible. These findings lend support to hypothesis H7b: Investors use syndication as a tool of reducing risk when they operate outside their own field of expertise. The findings are also in line with Hopp and Rieder (2006). I will elaborate these findings further and examine the statistical significance of them in chapter 5.2 with a VC investor characteristics regression model.

Table 6:
Summary Statistics for VC Investors

	Number of firms	Synd. Ratio	Average Cap ($Mil.)	Average Investment ($000)	Industry Preference			
					IT & Comm.	Biotech	Non-High-Tech	Diversified
Public	5	0.63	165.60	1653.62	3	0	0	2
Private Equity Firm	78	0.67	951.41	4163.24	33	1	25	19
Corporate Investor	11	0.96	3930.09	7650.36	11	0	2	1
Banking	14	0.90	533.29	5382.68	5	0	3	3
Other Financial Institution	11	0.85	290.30	2811.95	7	1	3	0
Whole Sample	119	0.74	1174.14	4332.37	59	2	33	25

The table reports summary statistics for VC investors. The transactions were identified through Thomson Venture Xpert Database. Data presented is stated as presented and defined by Thomson Venture Xpert. The syndication ratio gives the share of syndicated deals of all deals undertaken by the Venture Capitalist. "Average CAP" is the capital under management by the VC investor. "Average Investment" is the average investment in a single company made by the VC investor.

In order to draw further conclusion on venture capital investment behaviour, I report Average Capitalization ("Cap"), Average Investment and Industry Preference for the investors. As Table 8 shows, banking and corporate VCs have highest average investments, while public VCs have the lowest. As discussed in the previous paragraph, banking and corporate VCs are more likely to invest in later stage deals with higher valuations, but lower risk. This should and does increase the average investment of these investors. Public VCs on the other usually aim at providing money to seed and start-up stage companies that otherwise find it hard to obtain reasonably valued financing. Hence the clearly lower average investment. Reported capitalization is clearly highest for corporate investors and lowest for public VCs and VCs set up by other financial institutions.

Industry preferences of venture capital investors show preferred target industries as reported by TVE. I have made certain simplifications combining minor groups into larger entities for the purposes of this study. At first glance there seems to be no clear pattern between investor group preferences, except that all groups seem to prefer investments in the IT & Communications sector. I will discuss investor industry preference and syndication likelihood further with the investor characteristics regression model in chapter 5.2.

5.1.3 Venture Capital Investors' Nationalities

Table 7 on the next page presents VC investors' nationalities. Of all 864 financing transactions in Finland between 1.1.1996 and 31.3.2006 716 were carried out by Finnish

investors and 148 by foreign investors. Most active non-Finnish investors have been VCs from U.K., Sweden and United States. The high activity of U.K. VCs can be explained by 44 investments made by 3i. Although most of the investments are made by 3i Finland Oy, which is registered in Finland, its investments are classified under the parent company, 3i Group PLC registered in U.K.

Table 7:
VC Investor Characteristics: Nationality

	Observations	Syndicated		Syndication
		Yes	No	Ratio
Finland	716	350	366	0.49
United Kingdom	56	41	15	0.73
Sweden	32	22	10	0.69
United States	30	29	1	0.97
Denmark	8	7	1	0.88
Germany	7	7	0	1.00
Netherland	5	5	0	1.00
Other European	5	4	1	0.80
Asia (Singapore & Japan)	5	4	1	0.80
Whole Sample	864	469	395	0.54
Finland	716	350	366	0.49
Foreign Combined	148	119	29	0.80

The table presents observations divided by nationalities and the syndication ratio. The data has been obtained through Thomson Venture Economics Database. Syndication ratio is calculated by dividing the amount of syndicated deals by the amount of all deals (syndication ratio = syndicated deals / all deals). An observation is considered syndicated if multiple investors have invested in the company, regardless whether the investments were made simultaneously or not. Nationalities are reported individually, expect for the groups "Other European" (Spain, Switzerland, France and Italy) and "Asia" (Singapore and Japan).

While roughly half of Finnish investments were syndicated, the syndication ratio for foreign investors rose to 0.80, i.e. 80 percent of foreign VC investments made in Finnish companies were syndicated. Let's recall hypotheses H4:

H4. Syndication likelihood is higher for investors investing outside their own geographic area.

The descriptive statistics support H4. VCs operating outside their own geographic field are more likely not to invest alone. The fact that Swedish investors syndicate more than local

investors, but less than investors outside the Nordic region adds to the point: Swedish operators have at least some knowledge and expertise of the Finnish markets and syndication is not as essential as it would be for U.S. or Asian investors.

As before, syndication ratios presented include all transactions and are therefore biased upwards. This is because every syndicated deal is taken in calculation multiple times, once for each investor participating in the deal. Non-syndicated deals are, of course, calculated only once. This procedure yields higher syndication ratios, which should be noted when interpreting the results.

5.1.3 Summary Statistics for Funded Firms

The sample used in this study consists of 664 portfolio company observations. Of these companies, biggest groups in the sample were "Computers (software)", "Industrial/energy" and "Other".

Table 8:
Firm Characteristics: Descriptive Statistics for Funded Firms

	Observations	Syndicated		Syndication
		Yes	No	Ratio
Biotech	21	10	11	0.48
Communications and media	63	31	32	0.49
Computers (hardware)	19	6	13	0.32
Computers (software)	123	52	71	0.42
Consumer related	62	27	35	0.44
Electronics	42	17	25	0.40
Industrial/energy	113	34	79	0.30
Internet	61	26	35	0.43
Medical/health	49	20	29	0.41
Other products	111	30	81	0.27
Whole Sample	664	253	411	0.38

The table presents observations divided in different industry groups and the syndication ratio. The data has been obtained through Thomson Venture Economics Database. Industry classifications are reported as defined and published by TVE. Syndication ratio is calculated by dividing the amount of syndicated deals by the amount of all deals (synd ratio = syndicated deals / all deals). An observation is considered syndicated if the company has received investments from multiple investors during its lifespan, regardless whether the money was invested simultaneously or not.

As Table 8 above shows, companies in groups such as "Biotech", "Communications and media" and "Internet" seem to attract syndicated funding more often than their peers, whereas syndication ratio in groups such as "Industrial/Energy", "Computers (hardware)" and "Other products" was clearly lower compared to peer groups. This is in line with major hypotheses; fields of industry that are less developed and with more uncertainties drive venture capital investors to syndicate their investments in order to reduce various risks associated with the deal. Fields of industry that have been established a longer time ago and that don't include high amounts of technological uncertainties, e.g. "Computers (hardware)", attract less syndication. This lends support to previous research (see e.g. Bygrave, 1987 and Gompers, 1995, who have shown that there is more co-investing when there is a higher level of uncertainty) and to my hypothesis H9.

H9. Higher business risk increases the incentives to syndicate and therefore the syndication likelihood.

Companies that operate in younger, riskier and high technology industries seem to attract more syndication than companies in mature and developed industries. VC investors seem to concentrate investments in early-stage companies and high-tech industries where informational asymmetries are likely to be most significant and monitoring most valuable. I will elaborate this point further and examine the statistical significance of the findings in chapter 5.5 in a context of funded firm characteristics –regression model.

Table 9 on the next page presents summary characteristics for the sub-sample of funded firms for which I was able to obtain information about age and size measured in terms of sales and employees. The age variable was available for 387 companies, however for the sake of simplicity I only report statistics for deals where information was available for age, sales and employees simultaneously. The data for the deals and company age at investment is taken from Thomson Venture Xpert and the data for sales and the amount of employees at investment from Voitto+ database. Some data was complemented using public sources such as corporate web sites and public disclosures. I use a t-test to test for equal means between syndicated and non-syndicated investments.

Table 9:
Summary Statistics for Funded Companies

	Observations		Age			Employees			Sales ($Mil)		
	Syndicated?		Syndicated?			Syndicated?			Syndicated?		
	Yes	No	Yes	No	Difference	Yes	No	Difference	Yes	No	Difference
Biotech	7	6	6.00	3.67	2.33	17	22	-5	0.068	2.152	-2.084**
Communications and media	18	13	3.89	11.85	-7.96*	52	125	-73	2.652	34.126	-31.473*
Computers (hardware)	2	6	8.00	6.67	1.33	65	55	9	9.248	9.767	-0.519
Computers (software)	36	33	5.69	6.21	-0.52	28	21	7	1.882	2.123	-0.241
Consumer related	20	14	18.45	10.79	7.66*	163	59	104	24.452	7.280	17.171*
Electronics	10	14	6.10	6.93	-0.83	39	53	-15	4.885	5.170	-0.285
Industrial/energy	23	48	8.87	13.90	-5.03	63	56	6	9.348	8.800	0.548
Internet	13	23	4.54	6.22	-1.68**	33	16	17*	2.058	1.779	0.279
Medical/health	14	13	10.29	7.77	2.52	55	45	10	3.003	9.256	-6.253
Other products	19	36	17.42	8.47	8.95	67	47	20	7.284	6.227	1.057
Whole Sample	162	206	9.27	9.15	0.11	60	48	12	6.756	8.333	-1.576

The table reports Summary Statistics for the funded companies in the sample. The deals were identified through Thomson Venture Xpert Database and data for company age has been obtained through Thomson Venture Xpert as well. Data for employess and sales at investment have been obtained from Voitto+ database and public sources. The sample has been split into syndicated and non-syndicated deals. The subsample includes 356 observations and contains all target companies for which data for employees and sales were obtainable. A t-test for equal means has been undertaken.

*, **, *** denotes significance at the 10%, 5% and 1% levels respectively.

Table 9, "Summary Statistics for Funded Companies", above indicates that there are differences in company characteristics between sectors and within sectors between syndicated and non-syndicated companies. Among sectors we can see that firms in the Internet sector differ both in age and in the amount of employees. Companies that have obtained syndicated funding are younger and larger when measured by the amount of employees. These differences are significant at 5% and 10% levels, respectively. Companies in Communications and Media sector differ in Age and Sales, as do companies in Consumer Related sector as well. These differences are significant at the 10% level. Companies in Biotech sector seem to differ in the amount of sales.

On the whole sample-level companies that receive syndicated financing do not seem to differ from those with only a single investor in terms of "Age at Investment". Although the differences are not statistically significant, syndicated companies seem to be larger if we measure size by the amount of employees, but smaller if we measure the size by company sales. This is somewhat surprising and calls for further discussion and analysis. It may be that in addition of measuring company size, company sales also proxies for the risk related to the investment. Companies that already generate an inflow of cash are presumably at a more mature stage of compared to companies that are still in the phase of product development. It would therefore be sensible to claim that because of the higher risk associated with companies with lower sales would increase the syndication likelihood. I will discuss this point further later in chapter 5.5.

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5.1.5 Company stage at investment and syndication likelihood

Table 10 below presents venture capital investment syndication activity divided by different financing stages of the target company. Data and classification is as defined and presented by Thomson Venture Xpert. Data for financing stage could be obtained for 624 companies. The stage reported is the stage at the time of investment.

Table 10:
Target Company Stage and Syndication Behaviour

Stage	Observations	Syndicated		Syndication
		Yes	No	Ratio
Start-up/Seed	210	71	139	0.34
Early Stage	126	56	70	0.44
Expansion	212	87	125	0.41
Later stage	6	1	5	0.17
Buyout/Acquisition	67	38	29	0.57
Other	3	1	2	0.33
Whole Sample	624	254	370	0.41

The table presents observations divided in different financing stages and the syndication ratio. The data has been obtained through Thomson Venture Economics Database. Data for financing stage could be obtained for 624 companies. Financing stage classifications are reported as defined and published by TVE. Syndication ratio is calculated by dividing the amount of syndicated deals by the amount of all deals (synd ratio = syndicated deals / all deals). An observation is considered syndicated if the company has received investments from multiple investors during its lifespan, regardless whether the money was invested simultaneously or not.

I report target company stage and syndication activity separately because company stage at investment dummies showed no statistical significance in the regression models and were therefore dropped out. As we can see, syndication likelihood is heightened for buyout and acquisition stage deals and remains more or less constant for the rest of the stages. Of later stage deals, only 17 percent were syndicated, but because of the small size of the stage group, this result does not lead to any conclusions. The descriptive analysis does not yield results supporting hypothesis H7.

H7. Syndication likelihood is higher for early-stage investments.

It seems that the size of financing deal is more important than company stage considerations. This finding is similar to the findings of Shepherd and Zacharakis (2002) and Wright and Robbie (1998).

5.1.6 Financing round and syndication likelihood

Table 11 below presents syndication activity by financing rounds. Lets recall hypothesis H6 presented in chapter 3:

H6. First-round deals are most likely to be syndicated, because incentives to syndicate are highest at that time.

As hypothesized, syndication activity is highest at first investment round. This lends support to the theory, that syndication benefits are highest before the initial investment (Lerner, 1994) and that at least some of the benefits disappear in later parts of financing cycle. Lerner (1994) suggests based on Sah and Stiglitz (1986) that syndicating first-round venture investments with well-established partners may be a way to better assess the information provided by potential portfolio companies and, eventually, lead to better decisions about whether to invest in firms. Lerner (1994) emphasizes that need of a second opinion is greatest at the stage of initial investment. He finds evidence that established VC firms syndicate with one another in first-round investments and with less-established organizations in later rounds.

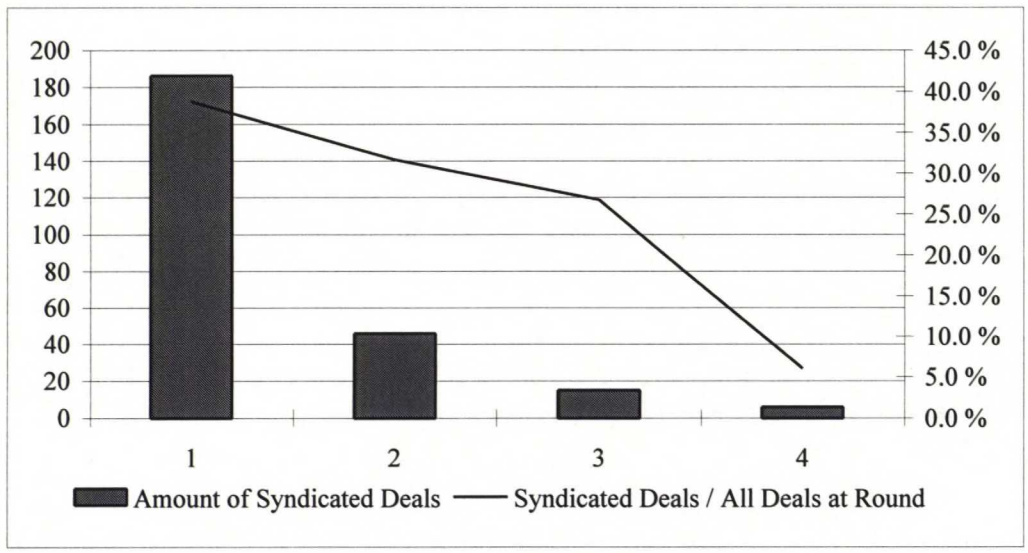
Table 11:
Syndication Round

	No Syndication	1	2	3	4+
Syndication by Rounds	411	186	46	15	6
Percentage of All Deals at Round	na	38.8 %	31.7 %	26.7 %	6.0 %
Percentage of Syndicated Deals	na	73.5%	18.2%	5.9%	2.4%
Percentage of All Deals	61.9%	28.0%	6.9%	2.3%	0.9%

The table reports syndication activity divided by financing rounds syndication occurred. Total sample includes 664 companies. The data has been obtained through Thomson Venture Economics Database. "Percentage of All Deals at Round" reports the share of syndicated deals of all deals at specified round. "Percentage of Syndicated Deals" reports the share of syndicated deals of all syndicated deals at specified round . "Percentage of All Deals" reports the share of syndicated deals at specified round of all deals.

The findings clearly support the theory presented by Lerner (1994). Syndication likelihood is clearly higher at earlier rounds of financing compared to investments made later on in the financing cycle. "Percentage of Deals at Round" reports the share of syndicated deals at specified round divided by all deals at that round. Syndication at earlier rounds is clearly more probable, likelihood at first round being nearly 40 percent (38.8%) compared to the likelihood of only 6 percent (6.0%) at round four or at later rounds. It is also worthwhile to notice that the syndication ratio slopes downward between all rounds, as shown in Table 12 below. Thus it seems that syndication is used as a measure of reducing the risk of asymmetric information at earlier financing rounds and that the risk reducing benefits associated with asymmetric information disappear at later rounds, as suggested by (Lerner, 1994).

Table 12:
Syndication Activity by Rounds



The table presents syndication activity by differenct financing rounds companies have received. The sample includes 664 companies. The data has been obtained from Thomson Venture Xpert Database and is presented as published and defined by TVE. "Amount of Syndicated Deals" is the amount of syndicated deals at a specified round. "Syndicated Deals / All Deals at Round" reports the share of syndicated deals of all deals at specified round.

The results of the descriptive analysis lend support t hypothesis H6 on first-round deals being most likely to be syndicated because of the higher incentives at that time. The effect seems strong and the likelihood of syndication decreases at later financing rounds. Thus supporting the resource based views of explaining venture capital syndication: Syndication is a response

to the need to share and access information in the selection (and management) of investments as suggested by Lockett and Wright (2001).

5.2 VC Investor Characteristics

This chapter presents the two venture capital investor characteristics regression models. I estimate the models using OLS regression. First, Table 13 on page 47 presents results for the model including all the investors of the sample. Second, Table 14 on page 49 presents results for the model when one-time investors have been removed from the sample. The dependent variable in both models is Syndication Ratio, defined earlier in chapter 4. The models aim at finding out how VC investors' and deal characteristics influence the syndication decision and syndication likelihood.

5.2.1 Deal size

Let's first recall one of the most essential hypotheses, H1.

H1. Deal size and syndication behaviour: Syndication likelihood increases with the deal size.

Based on the finance view on motives for syndication, I hypothesized in H1 larger investments to attract more syndication compared to smaller ones. Especially for smaller VC investors syndication may be the only means of attaining a well-diversified portfolio if the relative size of the project is too large. This theory is based on Markowitz (1952) and previous research on venture capital syndication.

The results strongly support hypothesis H1. "LN Average Investment Size" variable receives a positive, i.e. syndication increasing, value in both models, including and excluding one-time investors. This result is significant at the 5% level in both models.

Further, it should be noted that investment size seems to be one of the strongest drivers of syndication likelihood and the decision to syndicate. As pointed out, this lends strong support to the finance-based diversifying motive. Investors syndicate in order to limit the risk created by a single portfolio company. Hypothesis H1 is therefore accepted. Syndication likelihood increases with the deal size.

Table 13:
Investor Type, Industry Focus and the Likelihood of Investment Syndication (All Investors)

	Exp.	Dependent Variable: Syndication Ratio					
	Sign	(1) Est.	P-value	(2) Est.	P-value	(3) Est.	P-value
Nr. of Investments in Sample	-	-0.0054**	(0.011)	-0.0055**	(0.023)	-0.0049**	(0.037)
Focus IT and Communication (d)	+	0.28***	(0.0009)	0.26***	(0.002)	0.24***	(0.005)
Focus Non-High-Technology (d)	-	-0.11	(0.241)	-0.11	(0.207)	-0.10	(0.249)
Focus Biotechnology (d)	+	0.18	(0.481)	0.17	(0.495)	0.17	(0.474)
Banking (d)	+			0.16	(0.284)	0.13	(0.333)
Corporate (d)	+			0.022	(0.875)	0.059	(0.647)
Private Equity Firm (d)	-			-0.11	(0.296)	-0.10	(0.320)
Public (d)	?			0.059	(0.775)	0.062	(0.743)
LN Average Investment Size	+					0.039**	(0.046)
Firm Age at Investment	-					-0.025	(0.728)
Number of obs.		119		119		111	
F - Test		5.52***		3.93***		4.70***	
Adjusted R-Squared		0.133		0.166		0.233	

The table reports results for an OLS regression model estimating the impact of VC investor characteristics, affiliation and stage preference on investment syndication likelihood. The dependent variable in all regressions is a syndication ratio, calculated as explained earlier. Explanatory variables in the model are "investor type dummies", "investor business focus dummies", number of investments in the sample, the napierian logarith of the average investment size and the age of investor at the time of investment investment.

Number of investments in sample reports the total number of investor's investment in the sample. "LN Average Investment in Sample" reports the napierian logarithm of investor's average investment. The sample for the first two regressions include 119 venture capital transactions. For the third regression the sample has been reduced to 111 transactions for which information about investor's age at investment have been obtained. The data has been obtained through Thomson Venture Xpert Database and complemented through public sources. The table reports coefficient estimates along with p-values in parentheses. Dummy variables for "Focus Other (d)" and "Other investor type" have been dropped out. Intercept is not reported.

*, **, *** denotes significance at the 10%, 5% or 1% level respectively.

Hypotheses related to investor experience and industry knowledge are discussed next.

5.2.2 Investor experience and industry knowledge

H2. Inexperienced investors are more likely to invest in a syndicate because the need for additional expertise is higher.

I hypothesized in H2 that inexperienced investors are more likely to invest in a syndicate because the need for sharing and accessing additional information and expertise is higher. Being in possession of experience and skills would on the other hand make investors less prone to co-invest in a deal. I measure VC investor experience by the number of investments made by the investor in the sample and the age of the investor. Similar proxies for investor experience have been used in earlier studies by e.g. Hopp and Rieder (2006) and Manigart et al. (2006).

The "Nr. Of Investments" variable receives a significantly negative value in all definitions of the first model including all investors. This suggests that experienced and active venture capitalists actually do syndicate less. The result is significant at the 5% level in all specifications of the model.

In order to control for the effect of investors that have done only one investment, I test the hypotheses in a second model that excludes one-time investors. The results for the model are presented in Table 14 on the next page. In the second model where one-time investors have been excluded from the sample the regression still yields negative and statistically significant values for the "Nr. of Investments" variable. This result lends further support to hypothesis H2. Investors who possess more experience, i.e. have done more deals, are less prone to co-invest.

Age of the venture capital firm variable, "Firm Age at Investment", does not yield statistically significant results in neither of the two models, although the sign of the value received is negative as expected. It may that be that the age does not proxy well for the experience level and syndication willingness of investors because many of the foreign investors are older and more experienced compared to their Finnish peers, but still unlikely to invest alone because they are operating outside their own field of geographic expertise. This theory would invalidate the use firm age as an explaining variable in this setting, but does not affect the validity of the "Number of Investments in Sample" variable because it accounts only for deals made in Finland, i.e. "Finnish market expertise". Care should be taken when interpreting these results, but H2 is still accepted for the part of lack of expertise increasing syndication likelihood when measured by the number of investments.

Table 14:
Industry Focus and the Likelihood of Investment Syndication (Excluding One-Time Investors)

	Exp.	Dependent Variable: Syndication Ratio					
	Sign	(1) Est.	P-value	(2) Est.	P-value	(3) Est.	P-value
Nr. of Investments in Sample	-	-0.0043**	(0.026)	-0.0045*	(0.056)	-0.0024*	(0.097)
Focus IT and Communication (d)	+	0.26***	(0.007)	0.25***	(0.014)	0.18*	(0.081)
Focus Non-High-Technology (d)	-	-0.0036	(0.972)	-0.0047	(0.964)	-0.0029	(0.978)
Focus Biotechnology (d)	+	0.18	(0.400)	0.22	(0.312)	0.18	(0.402)
Banking (d)	+			0.31	(0.211)	0.20	(0.406)
Corporate (d)	+			0.21	(0.245)	0.087	(0.637)
Private Equity Firm (d)	-			-0.030	(0.834)	-0.016	(0.909)
Public (d)	?			0.15	(0.515)	0.10	(0.649)
LN Average Investment Size	+					0.073**	(0.036)
Firm Age at Investment	-					-0.037	(0.328)
Number of obs.		53		53		51	
F - Test		4.07***		2.55**		2.87***	
Adjusted R-Squared		0.191		0.1928		0.252	

The table reports results for an OLS regression model estimating the impact of VC investor characteristics, affiliation and stage preference on investment syndication likelihood. One-time investors have been excluded from the data set. The dependent variable in all regressions is a syndication ratio, calculated as explained earlier. Explanatory variables in the model are "investor type dummies", "investor business focus dummies", number of investments in the sample, the napierian logarith of the average investment size and the age of investor at the time of investment investment.

Number of investments in sample reports the total number of investor's investment in the sample. "LN Average Investment in Sample" reports the napierian logarithm of investor's average investment. The sample for the first two regressions include 53 venture capital transactions. For the third regression the sample has been reduced to 51 transactions for which information about investor's age at investment have been obtained. The data has been obtained through Thomson Venture Xpert Database and complemented through public sources. The table reports coefficient estimates along with p-values in parentheses. Dummy variables for "Focus Other (d)" and "Other investor type" have been dropped out. Intercept is not reported.

*, **, *** denotes significance at the 10%, 5% or 1% level respectively.

H3. Investors that are not primarily venture capital investors are more likely to invest in a syndicate.

I hypothesized in H3 investors that are primarily not venture capital investors to be more prone to syndication. These investors are firms with strong affiliations to banking and corporate sources and whose primary business is other than venture capital activities. The hypothesis is based on the theory presented by Lockett and Wright (2001) that these investors do not have sufficient expertise or resources for reducing the various dimensions of company specific risk at both ex-ante and ex-post decision making stages in the venture capital process, ex-ante decision making relating to the selection of investments and ex-post decision making relating to the subsequent management of investments. It is neither the banks nor corporations business to valuate or manage and support the target companies after initial investments and syndicating the investment is thus required. Hypothesis H3 is closely related to H2 and investors' expertise or the possible lack of it. Although banks and corporations are

probably much more capable in other fields of financing compared to venture capital firms, they may lack crucial expertise in valuating young and unfamiliar companies, businesses and technologies.

The results do not support hypothesis H3. Although "Corporate" and "Banking" variables both receive positive, i.e. syndication increasing, values, these values are not statistically significant. This suggests that although investor affiliations may affect the syndication decision, there are other and more powerful factors behind the phenomenon.

Investor industry focus is discussed next.

5.2.3 Investor industry focus

H5: VC investors that focus in high tech industries are more likely to invest together.

As hypothesized, VC investors that prefer "Non-High-Technology" companies are less likely to syndicate, whereas investors that prefer riskier "IT and Communication" sector are more prone to syndicate. In both of the two models, the "Focus IT and Communication" dummy receives significantly positive, i.e. syndication increasing, values. In the model including all investors, the results are highly significant at the 1 percent level. In the model excluding onetime investors from the sample the results are significant only at the 10 percent level. Dummy variable for non-high technology gets a negative value in both models as expected, but the value is not statistically significant. Biotechnology dummy receives a positive value, which is sensible considering the risks and uncertainties associated with this certain field of industry.

Overall the results imply that industry preference of the investor does affect the decision to syndicate. I explain this by the higher need of sharing resources and information in younger and more dynamic industries that carry more uncertainties. Investors respond to uncertainties by syndicating. This supports the resource-based views of syndication motives. Hypothesis H5 is accepted; investors that prefer to invest in high tech industries are more likely to co-invest.

5.2.4 Model summary

In both models, there are three variables that receive statistically significant values: "Nr. Of Investments in Sample", "LN Average Investment Size" and "Focus IT and Communication". Although other variables receive expected signs, i.e. the direction of the effect is as hypothesized, the results for the values are not statistically significant. Investor affiliations do not seem to have an effect on syndication behaviour.

From the results we can draw some conclusions. First, the size of the investment is probably the most powerful driver of the syndication decision. Second, investor's level of expertise and experience does affect the likelihood of co-investing. Inexperienced investors are more likely to invest together. Third, also industry characteristics seem to affect syndication likelihood. Companies that have stated to focus on high tech industries are more likely to co-invest compared to their peers that have stated to focus more traditional fields of industry.

The adjusted R-squared is relatively high for both of the models, 0.233 for the model including all investors and 0.252 for the model excluding one-time investors. This suggests that the model manages to explain at least a part of the syndication phenomenon.

5.3 Market Volatility and Syndication Activity

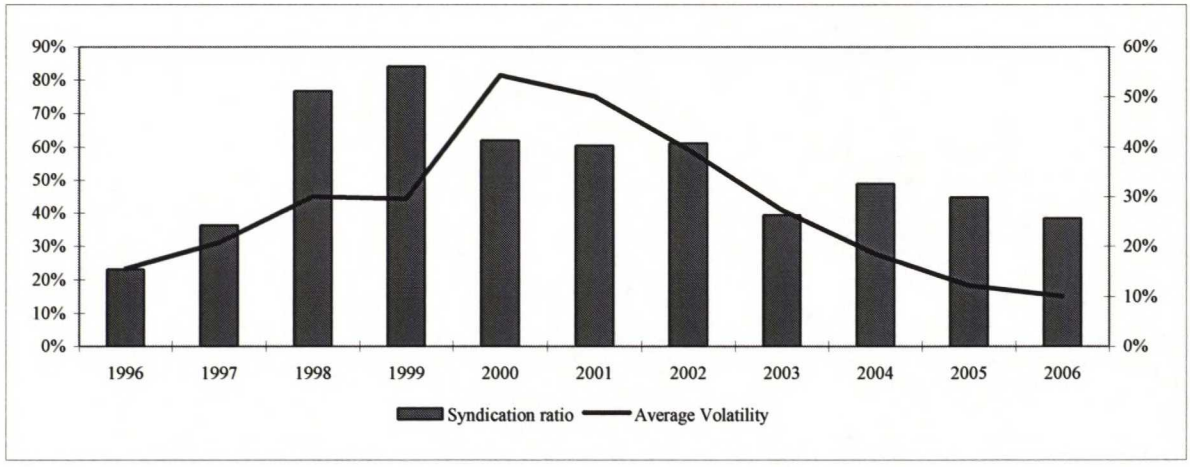
Table 15 on page 52 pictures the relation between market volatility and syndication activity. The data has been obtained from Thomson Venture Xpert for syndication activity and from Thomson's Worldscope for HEX General Index price data. All data is as published by TVE and Worldscope. I calculate volatility as the average 20-day annualized volatility for a given year.

I hypothesized in chapter 3 that syndication activity increases with volatility, because venture capital investors aim to control risk via syndication. This gave me hypothesis H8:

H8. Syndication and overall market volatility: Venture capital companies aim to control risk via syndication, and syndication likelihood is therefore higher at turbulent times than at steady times.

Correlation results presented in Table 15 clearly support hypothesis H8. Correlation between "Average Volatility" and "Syndication Activity" is strong and positive (0.561), and statistically significant at the 10% level. From this I am able to draw some conclusions. First, as the syndication activity seems to increase with market volatility, the results suggest that venture capitalists do use syndication as means of controlling risk. This lends support to both finance and resource view of venture capital syndication. Venture capital investors syndicate at turbulent times in order to share and reduce risk via increased diversification of portfolio and better selection of investments.

Table 15:
Volatility and Syndication Ratio



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006(Q1)
Syndication Ratio	23%	36%	77%	84%	62%	60%	61%	39%	49%	45%	38%
Average Volatility	15%	21%	30%	29%	54%	50%	40%	27%	18%	12%	10%

	N	Mean	Std Dev	Sum	Minimum	Maximum
Syndication Ratio	11	0.523	0.184	5.753	0.231	0.841
Average Volatility	11	0.279	0.148	3.074	0.101	0.543

Pearson Correlation for Variables	0,561*
Prob > |r| under H0: Rho=0	0,073

The chart above pictures the relation between market volatility and syndication activity. The data has been obtained from Thomson Venture Xpert for syndication activity and from Worldscope for HEX General Index price data. All data is as published by TVE and Worldscope. "Syndication Ratio" is the share of syndicated deals of all deals as defined before (left scale). "Average Volatility" is the annualized 20-day for HEX General Index (right scale). It is calculated as the average annualized 20-day volatility of all trading days of the year. I also report descriptive statistics and the correlation for "Syndication Ratio" and "Average Volatility" variables. A test for statistical significance is undertaken.

*, **, *** denotes significance at the 10%, 5% and 1% levels respectively.

There are also some alternative explanations to the market volatility – syndication activity relation phenomenon. It may be that venture capital investors are more likely to syndicate during good times simply because there are more than enough deals to invest in. VCs "can afford" to co-invest because the deal flow is high enough. During more quiet periods venture capitalists might have to invest alone because they are not offered enough deals, but still have to spend the money somehow. Gompers and Lerner (2001) suggest that at bull times, when funds become larger in real dollar terms, they presumably want to invest larger amounts of money in each portfolio company. Funds have two alternative ways of doing this: Invest more in later-stage companies that can accept larger blocks of financing, or syndicate less. The results don't support this theory, since syndication activity was highest at peak times.

Another issue is the deal size. As shown before, larger deals are more likely to obtain syndicated financing. During the most active times of syndication, also the average size of the deal was highest, which might have led to higher likelihood of syndication. (see Table 4, "Investment and Syndication Activity", on page 35) Another issue is the timing of observations. The data is recorded yearly, although the investments might have been made at any given time during that year. It is possible that this has caused some inaccuracies in the results.

Even with these considerations, I accept hypothesis H8. Syndication activity seems to increase with market volatility. Since the relation between market volatility and syndication has not been studied before, this should offer an interesting aspect to future research.

5.4 Syndication and Target Company Performance

This chapter aims to examine target company performance after the initial capital infusion. I hypothesized in chapter 3 based on Stuart, Ha Hoang and Hybels (1999) and Ahuja (2000) that companies which obtain syndicated funding should grow faster and perform better compared to their peers because of wider resources and increased credibility. This gave me hypotheses H10 and H11:

H10. Companies that receive syndicated funding grow faster.

H11. Companies that receive syndicated funding perform better.

Table 16 below reports growth and performance figures for a sub-sample of companies. Figures presented are the change between the time of initial capital infusion and the time two years post infusion. The sample consists of 158 companies that have obtained funding in the timeframe of this study, and for which data for the year of investment and two years post could be obtained. As previously, data is taken from Thomson Venture Xpert for the transactions and from Voitto+ for size and performance figures. Figures for "Sales Growth After Investment (%)" and "Employee Growth After Investment (%)" are the change in percentages, figures for "Change in ROI %" and "Change in Operating Margin %" are the absolute change, although the figures are actually percentages.

Regarding target company growth after investment, it seems that companies with multiple investors actually do grow faster compared to peers with only one investor. Especially sales, but also the number of employees show drastically higher growth rates, although significant only at the 10% level. This results supports hypothesis H10, but should be treated with some caution.

Table 16:
Syndication and Target Company Performance

		Syndicated			
	All	Yes	No	Difference	
Observations	158	63	95		
Sales Growth After Investment (%)	8.89	1974 %	169 %	18,05*	(0,067)
Employee Growth After Investment (%)	0.85	203 %	7 %	1,96*	(0,092)
Change in ROI %	12.77	12.10	13.21	-1.12	(0,412)
Change in Operating Margin %	22.46	31.79	16.28	15.50	(0,139)

The table reports change in performance and size figures 2-years post investment. The sample consists of 158 companies that have received financing between 1.1.1996 and 31.3.2006 and for which data for the year of investment and the year two years post could be obtained. Data is derived from Thomson Venture Xpert on for the transactions and from Voitto+ database for performance and size figures used. Data is as reported and defined by Thomson Venture Xpert and Voitto+. "Sales Growth After Investment (%)" and "Employee Growth After Investment (%)" are the percentage changes between sales and personnel figures at the time of capital infusion and two years post capital infusion. Although ROI and Operating Margin are reported as percentages, "Change in ROI" and "Change in Operating Margin" are absolute changes in the mentioned figures. A t-test for equal means has been undertaken.

*, **, *** denotes significance at the 10%, 5% and 1% levels respectively.

Higher growth rates can be explained in alternative ways. First alternative is that syndicated companies grow faster because of access to wider resources and increased credibility. This explanation would support the hypothesis and even confirm it. A syndicate is more capable in selecting better projects and supporting them after the investment compared to stand-alone investors. This results in faster growth and better results. This interpretation would also support the resource-based view of venture capital syndication in general.

Second, it may be that the faster growth rates can be explained by enhanced selection. A syndicate has wider experience and resources and is better able to determine the actual potential of a given investments. It is therefore sensible to expect syndicated investments to perform better and grow faster compared to its peers.

Third, it may be that syndicated companies grow faster because they receive larger amounts of money. As shown before, syndicated deals are bigger compared to stand-alone investments. This may show in more aggressive strategies and higher growth rates of sales and the number of employees. It may also be that syndicates prefer companies in later stages of development, where faster growth is more likely. Although my results don't support this theory, it is still a possibility I can't rule out.

ROI (return on investment) and Operating Margin % change figures don't show statistically significant differences between syndicated and non-syndicated companies. ROI was on average higher two years after investment, but slightly less for syndicated investments. The increase in Operating Margin % on the other hand was remarkably larger for companies backed by a syndicate. H11 is therefore rejected.

It should be noted that overall the figures are likely to be biased upwards. Companies that go bankrupt will not report any of the figures mentioned and are therefore excluded from the sample. The sample size is relatively small compared to the total amount of companies that received funding between 1996 and 2006. Companies that perform better are more likely to report certain figures and are therefore more likely to be included in the sample. Still, the share syndicated companies compared to non-syndicated is similar to the whole sample suggesting that both groups are represented equally, which makes it appropriate to draw conclusions. Companies backed by multiple investors seem to grow faster in terms of sales and the number of employees. Hypothesis H10 is accepted, but with conditions.

5.5 Funded Firm Characteristics and the Likelihood of Investment Syndication

This chapter presents results for regression analysis on funded firm characteristics and the likelihood of investment syndication. I also summarize the variables used in the regression model.

5.5.1 The Variables

Table 17 below summarizes the variables included in the analysis. The dependent variable in the regression model is a syndication dummy, which receives a value of (1) if the deal has been syndicated and a value of (0) if not.

Table 17:
Explanatory Variables: Description

Variable	Description
Age	The variable Age measures the age of the investee company at the investment date. Age should proxy for riskiness of the company as younger companies usually exhibit a higher failure rate.
Sales at Investment	Sales at Investment states the company sales at the year of investment proxies for firm size and development stage at the investment date. A napierian logarithm of sales at investment is used in the model to reduce the effect of sample skewness.
Employees at Investment	Employees at Investment states the number of people employed at the time of investment. It proxies for the firm size. A napierian logarithm of employees at investment is used in the model to reduce the effect of sample skewness.
Current Ratio	Current ratio states the current ratio of target company at the time of investment. It is used in the model as a proxy for risk.
Industry Dummies	In order to control for industry particularities, I have included an industry and zero otherwise. The industries included are presented in table 5.

The table presents variables used in the regression model. The dependent variable is a syndication dummy, which receives a value of 1 if the deal is syndicated and a value of 0 if not. Explanatory and control variables are described in the table. The data has been obtained through Thomson Venture Expert and Voitto+ databases.

The explanatory variables in the model are chosen to understand the effect of firm size and firm specific risk in syndication decision and in order to find out if there a significant differences in the corresponding industries.

In order to see whether a higher degree of co-investing in riskier industries can be confirmed by the dataset, a multivariate LOGIT model is run with the syndication-dummy as the dependent variable and the target company specific variables along with industry dummies as the explaining variables. The results for the regression are presented in the next chapter.

5.5.2 Regression results for Funded Firm Characteristics -model

Table 18 on page 59 presents regression results for the LOGIT model estimating the likelihood of an investment deal being syndicated. Dependent variable in the model is a syndication dummy, which receives a value of 1 if the financing is syndicated and 0 if not. In order to test different scenarios and statistical significance of the variables, I simulate the model in four different specifications. The following reviews the results.

Hypothesis H9 suggested that higher risk related to the investment increases syndication likelihood and that companies operating in younger and riskier fields of industry attract more syndicated funding (see e.g. Hopp and Rieder, 2006 and Bygrave, 1988). The model measures company specific risk by the field of industry dummies and the age of the company. For some parts, the results are in line with the hypothesis: Industry dummies for high tech, high growth and high risk industries, such as biotech and communications, receive positive values, i.e. syndication is more likely, and industry dummies for more traditional industries, such as computers hardware and industrial/energy sector, receive negative values, i.e. syndication is less likely. Age of the company on the other hand does not yield expected results. If age can be used as a proxy for company risk (see e.g. Bygrave 1988), the estimate for age variable should show negative values.

The problem with the whole model is that due to data constraints, I am not able to control for the effect of investment size, which was earlier identified as one of the main drivers of syndication behavior. Although the model yields some statistically significant results, overall

they are not reliable. For example, the industry group "Consumer related" yields positive and significant values in all specifications, when I would have expected opposite results. Companies in this industry group are clearly larger, which is likely to be the case for the investment sizes as well. While investment size strongly correlates with syndication likelihood, the results are skewed. Company sales and the number of employees are both correlated with the investment size as well, which makes interpretation of the results even more troublesome.

In the second specification napierian logarithm of company sales at investment is added to the model. It receives a negative value significant at the 10% level. This indicates that higher sales reduce the likelihood of syndication. There are a few possible explanations. Firstly, if we think of sales mainly as a proxy for size of the company, it would seem that smaller companies are more likely to receive syndicated funding. This interpretation goes against mainstream theories and previous research and should therefore be handled with great doubt. Manigart *et al.* (2006); Sahlman (1990) and Wright and Robbie (1998) have suggested that company size affects syndication behaviour in the opposite manner, especially if the investing firm is too small relative to the project size. It should be specified, that the previous research does not show company sales or other single indicators to have an increasing effect on syndication likelihood. It is the *size of the project*, i.e. size of the investment that is a key factor in the syndication decision, according to previous research. Neither sales nor the number of employees proxy well for the size of the investment, which makes it possible for me pursue alternative explanations.

Table 18:
Funded Firm Characteristics and the Likelihood of Investment Syndication

	Exp.	Dependent Variable: Indicator = 1 If Investment Syndicated							
	Sign	(1)		(2)		(3)		(4)	
Biotech	+	0.92	(0.140)	0.80	(0.240)	1.16*	(0.076)	0.50	(0.485)
Communications and media	+	1.038**	(0.025)	1.068**	(0.030)	1.17**	(0.016)	0.96**	(0.053)
Computers (hardware)	-	-0.35	(0.686)	-0.29	(0.740)	-0.35	(0.683)	-0.22	(0.802)
Computers (software)	+	0.66*	(0.071)	0.71*	(0.067)	0.71*	(0.063)	0.60	(0.122)
Consumer related	-	0.78*	(0.068)	0.78*	(0.081)	0.80*	(0.069)	0.81*	(0.070)
Electronics	?	0.34	(0.507)	0.46	(0.383)	0.44	(0.400)	0.42	(0.431)
Industrial/energy	-	-0.12	(0.749)	-0.068	(0.861)	-0.080	(0.836)	-0.063	(0.871)
Internet	+	0.18	(0.693)	0.25	(0.586)	0.39	(0.397)	0.14	(0.764)
Medical/health	?	0.78	(0.105)	0.83	(0.101)	0.89*	(0.071)	0.76	(0.137)
Current Ratio	-	0.026	(0.241)	0.023	(0.385)	0.035	(0.145)	0.014	(0.605)
Age at Investment	-	0.0074	(0.323)	0.010	(0.207)	0.0043	(0.586)	0.011	(0.162)
LN (Sales at Investment)	?			-0.073*	(0.078)				
LN (Employees at investment)	?					0.10	(0.213)		
LN (Sales / Employees)	?							-0.28***	(0.002)
Number of obs.		387		356		356		356	
Chi-Squared - Test		17.84		19.17		20.42		27.75	
Pseudo R-Squared		0.045		0.052		0.054		0.075	

The table reports a LOGIT model estimating the likelihood of an investment deal being syndicated. The sample for the first regression includes 387 venture capital deals that have either been syndicated (1) or not syndicated (0). The sample size is reduced, because data for "Age at Investment" and "Current Ratio" could be extracted for 387 observations only. For the second regression the sample includes 356 companies, from which statistics for "Sales at Investment" at the time of investment could be obtained. Same 356 observations are used in the last two regressions. The table reports coefficient estimates along with the p-values in parentheses. The variable "Other products" has been dropped, intercept is not reported.

*, **, *** denotes significance at the 10%, 5% or 1% level respectively.

One reasonable way to explain this phenomenon is to think of company sales as another proxy for risk, the development stage of the company to be more exact. Companies that generate a positive cash flow, i.e. already have products in the market, are more established and less risky compared to their peers. In this sense, higher sales reduces risk associated with the company and should therefore reduce incentives to syndicate. This explanation would lend support to the risk aversion hypotheses (see e.g. Lockett and Wright, 2001).

It would have been highly interesting to include the size of the investment in the funded firm characteristics model, but unfortunately data for investment size was available only for a part of the deals and more importantly, only for certain investors in a specified deal. In other words, if a deal had for example five investors, I could get data for only two of those investments. Using the sum of those two investments for the total investment size would have skewed the total project sizes too much for them to be used in the analysis. Luckily this complication did not prevent me from using this data in the regression model investigating the syndication behaviour on the investor's side, presented in chapter 5.3.

In the fourth specification I use the napierian logarithm of company sales divided by the number of employees (LN (Sales / Employees), a sales-per-employee ratio as an explaining variable. I calculate the variable by dividing the annual sales at the year of investment by the total number of company employees at that year. The napierian logarithm of the number of

employees (LN (Employees at Investment)) is dropped from the model. This procedure yields most confusing and at the same time most interesting results. The "LN (Sales / Employees)" variable receives a negative value, strongly significant at the 1% level. There are a few ways of explaining this phenomenon and they will be discussed in the following.

First of all, as discussed before, company sales at the time of investment can be thought of as an indicator of the development stage of the company. A company that is able to generate a positive cash flow is less risky compared to its peers that are not selling their products yet. As (Lerner, 1994) suggests, the advantages of syndication disappear after the first round of financing because the reduction of information asymmetry. Having products on the market reduces the amount of asymmetric information and uncertainty significantly and reduces the incentives to syndicate. This should show in lower syndication likelihood.

The number of personnel on the other hand does not carry such a message. Employees are naturally a necessity and a resource to the company, but also a liability, since the salaries have to be paid out no matter whether the company generates a positive cash flow or not. The number of employees does not tell about the stage of development in a way the amount of sales does. It might be that, and probably is, that more developed companies employ a higher number of people. But it might also be that more employees are needed at the stage of product development than at later stages of the company. Whatever the case, the risk is of the product ever entering the market is not measured as it is with the sales variable. The number of employees should therefore be seen as a proxy for both the size of the company and the development stage, but not as a proxy for risk.

If something, companies with a high number of employees, i.e. a higher outflow of cash, or a burn-rate, but low sales are more likely to bankrupt and in this sense riskier. Lets recall the variable LN (Sales / Employees), which receives a negative value in the model, significant at the 1% level. Higher the amount of sales generated by an employee, lower the risk and lower the likelihood to syndicate. Using a sales-per-employee ratio does have its limitations, but does still give an idea of company's productivity and financial health and tells us how expensive a company is to run. Early-stage businesses typically have low sales-per-employee numbers, and the ratio can therefore be used as an indicator of company development stage. Later stage companies with higher ratios are less risky and attract less syndication.

To conclude, even though industry characteristics may be important when explaining syndication behaviour (see e.g. Bygrave, 1987), the results of the regression model are not statistically reliable due to the inability to control for the investment size. Both sales and the number of employees are more or less correlated with investment size, which further invalidates the results.

5.6 Summary of results

This chapter summarizes the results in form of Table 19 below.

Table 19:
Summary of Results

Hypotheses on deal size and syndication likelihood		
H1	Syndication likelihood increases with the deal size	Support
Hypotheses on investor experience and industry knowledge and syndication behaviour		
H2	Inexperienced investors are more likely to invest in a syndicate because the need for additional expertise is higher	Support
H3	Investors that are not primarily venture capital investors are more likely to invest in a syndicate	No Support
H4	Syndication likelihood is higher for investors investing outside their own geographic area	Support
H5	VC investors that focus in high tech industries are more likely to invest together	Support
Hypotheses on financing stage and round of the target company and syndication behaviour		
H6	First-round deals are most likely to be syndicated, because incentives to syndicate are highest at that time	Support
H7	Syndication likelihood is higher for early-stage investments	No Support
Hypotheses on company and market risk and their effect syndication likelihood		
H8	Syndication likelihood is higher at turbulent times than at steady times, when measured with market volatility	Support
H9	Higher business risk increases the incentives to syndicate and therefore the syndication likelihood	No Support
Hypotheses on investment syndication and target company growth and performance		
H10	Companies that receive syndicated funding grow faster	Support
H11	Companies that receive syndicated funding perform better	No Support

The table presents a summary of results discussed in chapter 5. "Support" denotes that I find support to the hypothesis, "No support" denotes that I don't find confirmative evidence.

6. Conclusions

I studied venture capital syndication motives and behaviour in Finland between 1.1.1996 and 31.3.2006. The study was the first of its kind done using Finnish data and to my knowledge the only paper to explain syndication motives using actual deal outcome data, apart from Hopp and Rieder (2006).

The focus of the research was in studying what drives venture capital syndication, i.e. which factors affect a venture capital investor's decision to syndicate and what are the underlying motives. I find that venture capitalists use syndication for multiple purposes: To share resources, reduce risk and to gain additional expertise. Although the results did not unequivocally show companies in younger and riskier fields of industry to be more likely to attract syndicated funding that seems to be the case generally. Investors that had stated to focus their investment on high-tech industries were more likely to invest together, whereas investors that prefer non-high-tech industries were less prone to co-invest. This supports both finance and resource perspectives of VC syndication motives: Investors aim to both reduce the risk via superior selection and resources and share the risk via more effective diversification. This finding is similar to those of Bygrave (1987; 1988) and Hopp and Rieder (2006).

Deal size was identified as one of the main drivers of syndication. Investors need to syndicate larger deals in order of maintaining a well-diversified portfolio. The effect was stronger than the effect of risk related to a specific company. This finding goes against Bygrave (1987) but is similar to Shepherd and Zacharakis (2002), who suggest that small deals are invested by only a single investor regardless the risk, because large investors can do without unbalancing their portfolio. More emphasis is therefore placed on the finance theory of syndication motives.

Investor experience was identified as a strong factor in the syndication decision. Inexperienced investors need to syndicate in order to gain additional expertise and improve selection. I add new indicators of investor competence and generally these results are confirming to those received by Hopp and Rieder (2006). I also find that syndication

likelihood increases with market volatility. This is an interesting occurrence that has not been approached by earlier research. Still, it is plausible that investors aim to control company specific risks via syndication when the systematic risk of the market is elevated.

Finally, I found companies with syndicated funding to grow faster compared to non-syndicated peers, both when measured by sales and the number of employees. Also Hopp and Rieder (2006) documented the increased rate of sales growth. There are multiple ways of explaining this phenomenon: Better resources, increased credibility and better selection to name a few. This result should still be viewed with caution, since I found no significant improvement in the performance of the target company, when measured with ROI or operating margin %. The reason behind faster growth may be the fact that syndicated deals are, in general, larger. A company that receives money from multiple investors is therefore able to expand faster than its peers with stand-alone funding.

To conclude, finance- and resource-based motives should be viewed simultaneously as both seem to impact the syndication decision. Manigart et al. (2006) found a high degree of institutionalization of an accepted way of working throughout the European VC industry. Still, a comparison of practices and motives between countries and especially between Europe and the USA would be valuable. The roles of networks in generating and maintaining deal flow should be studied further. Yet, most important questions that still remain unanswered relate to the real-life benefits of syndicating. What have venture capital investors actually gained by syndicating? The lack of data has prevented researchers from pursuing this issue, but with more longitudinal performance and growth data future research will be better able to understand the actual gains of syndicating a venture capital investment. Understanding the witnessed and proven benefits of co-investing will surely open new avenues for further research.

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